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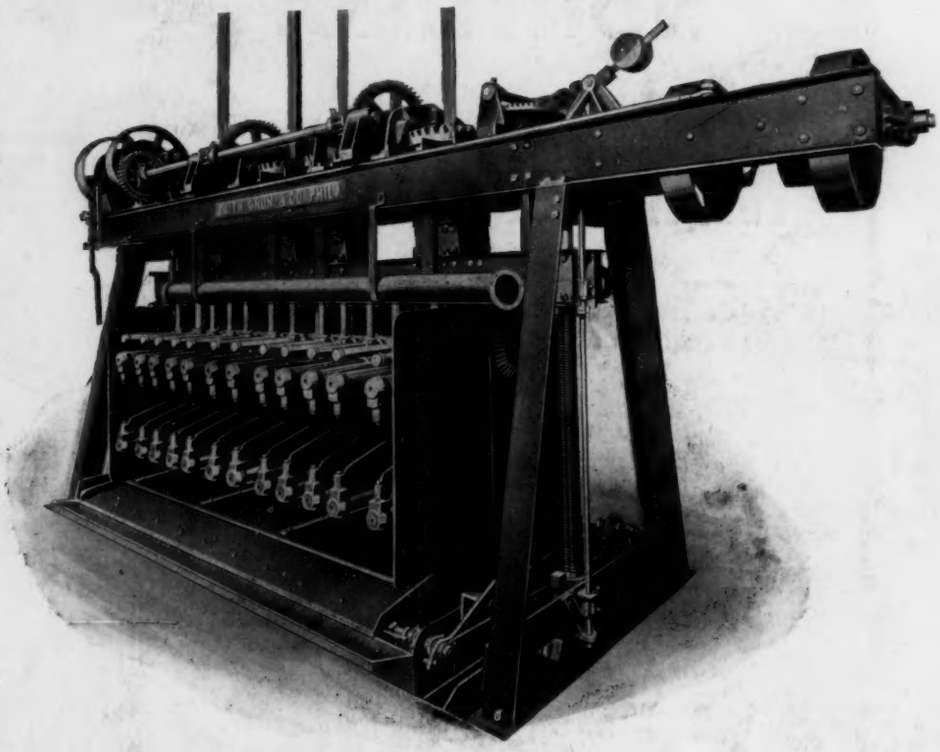

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COTTON

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THE MAKING OF A MAN.

Every little while the child labor enthusiasts, the faddists, the special agents, the secretaries or whatever may be the special titles of the units composing this class of social agitators, break out in a new spot or section of the country with their propaganda, always showing a pronounced animus toward the cotton mills. Specific outbreaks of this nature usually follow closely the outpouring of the necessary funds on the part of the philanthropists, from the certain sections of their plethoric pocket books devoted supposedly to the betterment of man. In the South these attacks have been particularly vicious.

It has been pointed out time after time that these outbreaks are the result of salaried men attempting to show their wealthy paymasters they are earning the salaries paid; that it is a mere matter of money; that the very people all this agitation is supposed to benefit are not in need of benefaction; that the very mills denounced are doing more real good by furnishing suitable employment amid surroundings tending to elevate mentally, morally, socially, physically and financially, than all the philanthropic work propagated since the beginning of time. But it is useless to attempt to prove these things to the hired agent. If he knows the truth he will not admit it. He cannot afford to tell his employer the true conditions. He would lose his job. What, then, is the remedy?

The Southern Textile Association has a membership exceeding a thousand. It has enrolled on its books more active mill men who began work as sweeper boys in cotton mills than probably any other textile organization in existence. This association holds two meetings annually. If the philanthropists, the plethoric purse pourers, would for once condescend to investigate in person instead of through an agent and attend one of these meetings, where they could rub elbows with and talk to these grown up mill boys their ideas of philanthropic needs and measures would receive a jolt so severe and so drastic as to quiet forever the voices of the hypocritical agents, many of whom would be hunting another job before the year ended.

Hundreds of instances could be cited where successful men of today earned their first money in the mill. A number are quoted by Dr. Foster in this issue to show the effect on the operatives of the cotton mill Y. M. C. A's. A concrete example might be pointed out in the man who made the response to the address of welcome at the recent Birmingham convention of the Southern Textile Association. Very few of those who listened to this eloquent address, realized that the speaker had, in his whole life, only attended day school eight months. The son of a confederate veteran in failing health, and next to the youngest in a family of nine, mostly girls, this man was forced, at the age of ten years, to do his part with his

brothers and sisters toward supporting the family. The cotton mill offered and they accepted. It was the one place available where a mixed family might find employment. Later he took a course with a correspondence school. He studied book-keeping at a night school. But he stuck to the mill, receiving promotion after promotion until he is now overseer of an important department in a southern mill. Nor has success in any way dimmed his ardor for advancement. The discipline under which he worked as a boy and the night study and personal effort so often exerted has now become his pastime, a pastime which will, in the course of a few more months, bring to him a much coveted LL. B.

Can we say the cotton mill had no part in this man's success? Certainly no agent of a philanthropist ever did anything toward it. This man had no money except that earned in a cotton mill. What education he has acquired he has paid for with that money. He is a leader in the mill, the mill village, the mill Sunday school and the mill base ball team. He is a thorough mill man in every sense of the word and he is proud of it. He has one ambition. It is the goal toward which he is slowly but surely working. This ambition is to represent his people, the poor downtrodden mill people we hear so much about, in the legislative halls of his state. Not to assist in the enactment of the many laws so frequently advanced and advocated by the paid agents already referred to, but to prevent their enactment when they contain the foolish and burdensome clauses with which so many of them are now supplied. To prevent their enactment by showing the other legislators, from the fullness of his own experience, just how foolish and how burdensome such laws now are or may become.

The cotton mills are building well and the future will show in still greater measure their by-product value in the making of men.

AN INTERNATIONAL TRADE OBSERVER.

The appointment of W. A. Graham Clark to open a Branch Office of the Bureau of Foreign and Domestic Commerce in Atlanta has attracted attention in this section to the fact that the American government maintains a corps of experts who travel the world to obtain technical information of value to American manufacturers and exporters.

Mr. Clark is the dean of the corps of Commercial Agents employed by the Department of Commerce and during his eight years of work in the service he has been around the world twice and has reported on 37 of the 49 independent countries of the world.

Mr. Clark has visited and reported on the trade of the following independent countries (in addition to subordinate sections like Korea, Baluchistan, India, Egypt, and Canada):

Japan	Holland	Brazil
China	France	Argentina
Afghanistan	Great Britain	Uruguay
Turkey	Cuba	Paraguay
Russia	Mexico	Chile
Norway	Guatemala	Bolivia
Sweden	Salvador	Peru
Denmark	Honduras	Ecuador
Germany	Nicaraugua	Dominican Republic
Austria-Hungary	Costa Rica	Haiti
Italy	Panama	
Greece	Colombia	
Switzerland	Ecuador	
Belgium		

The only countries not yet visited have been Siam, Persia, Abyssinia, Morrocco, Spain, Portugal, and the Balkan States, and his ambition is to visit every country in the world.

Mr. Clark is a son of Chief-Justice Walter Clark of North Carolina and was born in Raleigh in 1879. He was educated at the North Carolina A. & M. College and Cornell University and was then engaged in active cotton manufacturing for six years. In 1906 the cotton manufacturers urged the government to appoint a man to study foreign markets for their products and recommended Mr. Clark for the position. On applying at Washington for instructions from Major Carson, then Chief of the Bureau, the following conversation is said to have taken place: Major Carson—"Well, Clark, I suppose you know what the cotton mills want?" Clark—"I do." Major Carson—"Well, go

W. A. GRAHAM CLARK.

out and get it"; and with these comprehensive instructions Mr. Clark started west on a trip that lasted 28 months. This trip took him through Japan, the interior of Manchuria, the Philippines, India, Turkey, Egypt, and most of Europe. On his return he was sent out to cover Latin-America and visited all of the 20 republics lying south of the United States as well as islands of the West Indies.

On his return Mr. Clark was loaned to the Tariff Board and worked with them as Textile Expert for one and one-half years, visiting England to gather data as to costs in the cotton and wool industry and aiding in the preparation of their reports to congress.

On the decease of the Tariff Board he returned to the Department of Commerce, made a study of Canadian cotton mills and markets, and was then sent to England to report on the flax and jute industries. On his return he was sent, by the special requests of exporters, to Japan to make a study of the methods and costs of manufacture in Japanese cotton mills and into Manchuria to report on their competition with American cottons.

On his return via Siberia and England Mr. Clark was detailed to open a new Branch Office of the Bureau of Foreign & Domestic Commerce in Atlanta.

The government has published numerous reports of Mr. Clark's on the cotton industry—covering yarn, cloth, braid, embroidery, lace, and knit goods—and also on the woolen, worsted, shoddy, flax, hemp, and jute industries, and his reports have been of much value to the textile industries in this country in winning home and foreign markets.

The cotton manufacturers of the South are to be congratulated on the advantages to be derived by them by having a man of Mr. Clark's ability and experience permanently located at so central a point as the Post Office Building in Atlanta for personal consultation and reference at any time.

PARKER COTTON MILL CHANGES.

The retirement of Lewis W. Parker from the presidency of the Parker Cotton Mills Company is a matter of more than passing interest to the textile industry of the South. Mr. Parker formed the merger of this string of mills in 1911, when the situation from a business standpoint demanded financiering and organization of a bold and skillful character, and it was Mr. Parker who saved the day. All who know Mr. Parker are of the opinion that no one could have worked harder for the success of the Parker Mills than he. Insufficient financing in the first place no doubt contributed toward the lack of working capital and the final difficulties now encountered.

M. C. Branch, who replaces Mr. Parker as president of the Parker Cotton Mills Corporation, is president of the Merchants National Bank of Richmond, Va., and is of the family that controls the banking house of Thomas Branch & Sons. This firm and bank were interested in the original underwritings of the Parker Cotton Mills Corporation and are interested in other cotton mill properties, one of the family, John K. Branch, being a director of the Union-Buffalo Mills Company.

William E. Beattie, the president of the Piedmont Manufacturing Company, Piedmont, S. C., has been elected as treasurer of the company, replacing Alex McBeth, who also resigned. Mr. Beattie is one of the most successful manufacturers, not only in the South, but in the country. His Piedmont fabrics stand high in the domestic and export markets.

Mr. Parker remains a director in the Parker Cotton Mills Corporation and also on the boards of directors of the subsidiary companies.

These subsidiary companies, the Monaghan, the Victor and the Hampton have held meetings at which Mr. Beattie was elected treasurer and he and Mr. Branch added to the board of directors. Resolutions of confidence in Mr. Parker and regret at his resignation were also passed.

A new hardening material for the surface of concrete floors contains 95 per cent of iron dust or iron flour. It is added to the dry cement in the proportion of 15 to 25 pounds to each 100 pounds and one part of the mixture is used with two parts of sand. This preparation is applied as a top coat to a thickness of ½ to 1 inch. It forms a hard and durable floor, claimed to be waterproof and not slippery, and is also used for making new concrete adhere to old in repairing.

THE WAR'S EFFECTS ON LANCASHIRE.

BY "MANCUNIAN."

An industry that normally depends for eighty per cent of its output on overseas customers, which is the case with the Lancashire cotton industry, was bound to be most seriously affected by a war such as that now raging on the continent of Europe. No other trade in England stood to be hit so badly. Considering, to commence with, that trade was already depressed, that the declaration of war projected itself into the middle of a period of organized short time working; that business generally became more or less paralyzed by the proclamation of the moratorium; and it is at once evident that the outlook in the cotton trade at the beginning of August was decidedly gloomy for everybody concerned. Lancashire, indeed, has not been faced with so disastrous a situation since the American civil war over a half a century ago.

It may interest readers of COTTON to know something of the way in which Lancashire is faring in the day of its heavy trial, and to be informed as to how the future is regarded by Lancastrians.

England, though a combatant in this great war, occupies a much more favorable position than either her allies or her adversaries. To her the sea routes remain open. Even were the same trading possibilities available to the Continental nations, the fact that the flower of their manhood has been called to the colors, and that in consequence the textile industry in common with others must be tremendously handicapped, would render that advantage of small value. The English voluntary system of enlistment as opposed to conscription has not, as in the other cases, had the effect of bringing her industries all but to a standstill; it has so far hardly done more than relieved the labor market of what, in the circumstances outlined would have been surplus workers, In Lancashire, nevertheless, the effects of the war are gravely felt. The partial collapse of trade and the uncertainty in regard to the futur have had a depressing effect, yet nobody seems to regard the situation with despair. The moratorium having served its purpose has lapsed and the alarm that ensued during the first few days of the war has completely passed. A confident belief in the final success of the allies is, of course, a factor in the situation.

Speaking generally, the official returns of the Board of Trade show that employment as measured by trade union figures, is little if any greater than has been experienced in the past during the seasons of bad trade. The explanation is that in various branches an increased home trade has helped to make good the deficiency in foreign trade. Government orders have been given out plentifully and some of the cotton mills are working at their fullest capacity supplying requisites for the forces. On the whole, of course, the Lancashire textile trade has become very indifferent. A small proportion of the mills have been stopped most of the time since the war began, while the bulk run irregularly, either working short time, or stopping weeks at a time

The Board of Trade returns relating to the cotton in dustry, although not absolutely complete, neither all the unions nor all the employers furnishing particulars, are regarded as offering a fair criterion of the whole industry.

These show that on the first month of the war the rate of unemployment was 17.7 per cent, compared with 1.8 a year ago. The wages paid in the same period showed a decrease of as much as 60.9 per cent. The explanation of the difference between the two rates is that, without being "unemployed," great numbers were only working part time, or looking after a fewer number of looms. In the second month of the war there was a distinct improvement. The percentage of unemployment had dropped to 14.5, and the earnings which, after all, are the truer test were only 40.7 per cent less than in the corresponding period of 1913.

Averaging the two months the reduction in earnings was, say, 50 per cent. This figure very nearly coincides with the results obtained by the secretary of the Weavers' Amalgamation, relating to weaver's earnings throughout Lancashire, for eight weeks ending October 17. It was calculated that 8 shillings and 6 pence was lost on wages for every loom stopped, covering all sections employed in a weaving mill. Loss caused by mills running short time was based on two days stoppage per week, the number of looms on short time being divided by three. The loss caused by looms standing empty through waiting for warps is estimated at 20 per cent of the total looms in the county. With an estimated total of 800,000 looms and a total wage bill of £340,000 per week the following result was arrived at:

Week Ending 1914	Loss due to mills closed. £ s. d.	Loss by short time and wait'g. £ s. d.
August 29	138,613 15 0	.....68,000 0 0
September 5	112,914 8 6	.....68,000 0 0
September 12	62,441 17 0	.....93,845 19 0
September 19	68,309 8 0	.....89,782 10 0
September 26	66,569 17 6	.....90,846 6 0
October 3	73,865 8 6	.....81,091 14 0
October 10	75,084 6 6	.....83,234 11 0
October 17	62,851 16 0	.....96,226 16 0
Totals	.....660,450 17 0	.....671,027 16 0

Total loss, £1,331,478 13s 0d. Average loss per week £166,434 16 0d.—48.9 per cent of the total wages bill.

Statement of looms stopped and work-people unemployed during the same weeks:

No. of looms in mills closed	Workpeople unemployed.	No. of looms on short time	Workpeople on short time
326,150	108,711	nil	nil
265,681	88,551	nil	nil
146,922	50,983	182,444.....	.61,139
160,728	54,844	153,760.....	.51,562
156,635	53,013	161,268.....	.55,239
173,801	58,499	92,413.....	.31,209
176,669	59,006	107,539.....	.35,838
147,416	49,587	199,250.....	.66,408

Speaking roughly then, the Lancashire textile trade as a whole may be said to have fallen off by one-half Matters will not be improved by the coming into the fray of Turkey, with which country we have done about six million pounds' worth of business annually, mainly in piece goods (prints and whites and yarns; but at the time these lines were written there was a tendency towards increased trade and greater confidence, both buying and selling being more active than of late.

The sudden and abnormal rate of employment has imposed a great strain on the finances of the operatives' trade unions, owing to the large sums disbursed as stoppage pay. Representations were made to the government that the exceptional case of cotton merited special measures of relief. The claims were recognized as just, and the ordinary subsidy of one-sixth towards unemployment disbursements provided by the National Health Insurance Act, has been temporarily increased to such an extent that one-half the amount paid by the unions under this head is now being refunded by the state—a concession which has considerably eased the anxieties of the trade union officials.

Sooner or later a really difficult problem is bound to present itself. This has reference to the labor supply. Large numbers of factory operatives have enlisted for military service. The number of these recruits it is impossible to state with any degree of accuracy, because no returns have yet been made to the respective union headquarters. Bolton, I happen to know, has supplied well over 300 from the spinning section. Two hundred spinners and piecers have gone from Ashton-under-lyne, and the cardroom association in the same district has contributed a similar number. From various inquiries I have come to the conclusion that it would not, perhaps, be far wide of the mark to say that already the ranks of the spinners and carders have been depleted by at least ten percent, and of course, recruiting is still going on. Certainly, too, many employed in the weaving department have either been called up as reservists or have volunteered.

What would happen in the event of the sudden starting of all the mills now closed may be easily conjectured. In the weaving section, where seven out of every ten operatives are females, the inconvenience might be overcome without much difficulty by the substitution of women for the absent men. The case would be quite different in the cardroom, although eight out of every ten there are females. because the duties of the males and females are not interchangeable. In the mule rooms, where not a woman is tc be found, and where the shortage of piecers has been for years past an increasingly difficult problem, operations would be most seriously affected. Few mills would be able to run anything like their full complement of machinery, and many would undoubtedly be jn a real difficulty. It is possible to argue that the restriction of the industry will last as long as the war, and that eventually matters will right themselves automatically, but such argument forgets that unfortunately, not nearly all who have gone or are going to the front will return.

The certain fact about this matter is that under no circumstances will female labor be permitted to find its way into the mule rooms. Such was the emphatic statement made to me only a day or two ago by the president of the Operative Spinner's Amalgamation. That has been the fixed policy of the mule spinners all along and in this connection it is well to remember that theirs is not only the wealthiest but the best organized of the textile unions. They are also as resolutly opposed as ever to working beyond the prescribed ten hours per day. Various proposals to this end have been made to them during the past

few weeks by the employers who have received urgent Government orders, but the uniform reply has been "No overtime." The plea of national emergency has made no difference; firms who have undertaken orders they could not execute within the ordinary working time, have been simply advised to pass on a share to other mills that were standing idle or working short time. The weavers have not been so unbending. In a number of cases, under the special circumstances, the convenience of manufacturers has been met by the union officials, the Home Office likewise have relaxed the hours law applying to protected persons.

I have had an opportunity for discussing matters with the central figure in connection with the Lancashire cotton industry, who is also a man of world-wide repute; I refer to Sir Charles W. Macara, president of both the Master Cotton Spinners Federation and the International Federation of Master Cotton Spinners and Manufacturers' Associations. Sir Charles affirmed that machinery in this country was being run at a heavy loss. The situation was sufficiently serious, but with wise handling there was no occasion for undue alarm. The temporary closing of the European markets was not in itself a very important matter. The peril lay in the present plight of the growers of cotton, who, unable to realize profitably on their stocks, would next season largely neglect cotton and turn their attention to the growing of food stuffs. The consequence would be that the prices of cotton would soar when the demand arrived, as it would in due course. The evil of that was obvious. The Indian crop was an important factor in the economic condition of our dependency. The harvest had been a very good one. In ordinary circumstances much of it would have been absorbed by the belligerent countries—not so much by England as by France, Germany, Austria, Italy, etc. Failing to obtain remunerative prices the Indian growers had suffered financially, with the result that the country was so much the poorer and the demand for Lancashire goods was correspondingly less. The same applied to Egypt. However, England was doing wonderfully well, everything considered or better indeed than any other country in the world at the present time. What was requisite in the common interest was a stable price of the raw material, and if proper measures had been taken at the beginning, cotton would have been brought down from the exorbitant price at which it had undoubtedly stood and there would have been a fair demand all over the world.

Sir Charles has been reviving the proposal for a cotton reserve, which he ventilated at Atlanta seven years ago when he headed the Lancashire deputation who visited the various plantations in the United States. England and America are the chief countries concerned and he is firmly convinced that by the cooperation of the respective governments in the direction indicated great things might be accomplished. As regards the duration of the war, the International President believes it to be impossible, for economic reasons, that hostilities can be maintained for an indefinite period. So far as Britain was concerned, the Government had on this occasion taken the wise course of consulting trading and financial experts and the best results had accrued. At the commencement of the war he stated with confidence that the situation could be faced with equanimity if only the various interests affected, industrial, commercial, financial, transport and labor assisted by the government, presented a united front to the common danger. In a large measure this principle has been acted upon, and if the advice of Sir Charles Macara is taken that course will be pursued still further, both now and when the war is but a memory.

In conclusion, it may be well worth while to mention that Professor Chapman of the Manchester University who is an acknowledged authority on cotton trade economics has expressed optimistic views with regard to the present crisis. In a carefully reasoned statement, too long to summarize here, he points out that as cotton goods do not enter appreciably into the class of luxuries, a less serious contraction of demand owing to the war is to be expected than in the case of lasting things that are by no means indispensable. We would be astonished if the home demand showed anything like a collapse after a few months, and if it did a great demand would break out on the conclusion of the war which would render production for stock during the war profitable if it could be financed. He adds: "There are indications that the paralysing effects of the war on demand are disappearing, and the ordinary depression will work itself off as all such depressions do." But it is not likely, I should imagine, that improvement will be noticeable until after the New Year.

[Since this letter was written Sir Charles Wright Macara has resigned his office as president of the Federation of Master Cotton Spinners. This action was taken as the result of a resolution passed by a general committee of the Federation, to the effect that no member of the organization was entitled to express any views affecting the interests of the Federation, without first submitting them to the Federation. In resigning Sir Charles wrote:

"I have no intention of surrendering my rights to act or speak at any time of crisis in any way which my long experience leads me to believe to be for the interest of the nation."—Editor.]

Latin American Trade Situation.

That Latin American countries are looking to the United States for the capital and the market for their products which they formerly found in Europe is emphasized in "Statements on the Latin American Trade Situation," a pamphlet just issued by the Bureau of Foreign and Domestic Commerce of the Department of Commerce, giving the addresses made by representatives of Latin American countries at a conference with American business men recently held in Washington. The pamphlet, issued as Miscellaneous Series No. 18, contains the statements made by the ministers from Bolivia, Uruguay, Peru, and Cuba to the United States, the consuls general of Costa Rica and Colombia in New York, the minister from Ecuador to England, and others, besides the opening remarks of Secretary of State William J. Bryan, and a statement by Secretary of Commerce William C. Redfield. Many obstacles to the development of Latin American trade with the United States were commented on, notably the matter of credits and that of a proper understanding of the Latin American way of doing business on the part of business men in the United States.

One-fifth of the French spindleage is normally employed on Egyptian cotton, and the balance on American cotton. French mills used 1,025,000 bales of cotton during the cotton year ended August 31, 1914.

Southern Textile Association

There was a very representative attendance at the Birmingham convention of the Southern Textile Association and what was lacking in numbers was made up in enthusiasm. While the opening session was not held until 10 o'clock Friday morning, there were many arrivals Thursday afternoon and the evening was spent renewing old acquaintances.

An excellent program had been prepared and the close attention given was a high compliment to the careful preparation the various papers had undoubtedly received.

When the first session had been called to order by President Bowen, addresses of welcome were made by Judge A. O. Lane, City Commissioner of Birmingham; Paschal G. Shook, President of the Birmingham Chamber of Commerce; and Scott Maxwell, Cordova, Ala., President of the Alabama Cotton Manufacturers' Association.

The response to these addresses on behalf of the association was made by Joe E. Brendle of the Lowe Manufacturing Co., Huntsville, Ala., who said in part:

"We are glad this meeting is held in Alabama, whose history has been a history of progress. Come with me for a moment in a backward glance over a few years of this progress. In 1835 the first cotton mill was erected in this state, away up in the northern part, with an equipment of 2,000 spindles and 96 looms, but today there are 64 mills and 1,091,406 spindles, which are placing on the market as high a grade of yarns and fancy weaves as can be found anywhere.

"This Association represents 13,000,000 spindles, 300,000 looms and more than 300 million dollars investment, consuming three and one-half million bales of cotton annually—the South's greatest industry. Then, gentlemen, when we realize that these representatives of the South's greatest industry are today holding their semi-annual meeting in one of the South's greatest industrial cities, we have ample cause for rejoicing.

"We are especially glad that this meeting is being held in your city, the city of opportunity. Its history, though short, is one that is unsurpassed for growth and development. Think of it gentlemen, only 43 years old, the metropolis of the state, the near metropolis of the South, and today it has 189,000 inhabitants.

"In the year 1816, the government donated to an insane asylum a large tract of land in which is now located Jefferson County, and hence Birmingham. The trustees sent one, William Ely, to select the land and to commit its profits to the institution. He secured a tract for his personal use and built thereon a town, which was named for the founder, "Elyton." He secured the court house and other public buildings, but in 1870 the court house was consumed by fire, but by the influence of some of the citizens, the General Assembly approved the plans for the erection of another court house where it now stands. At that time there was nothing here but the crossing of the Alabama Great Southern and L. & N. railroads and an old historic blacksmith shop.

"The city's foundation was laid August 8th, 1871, and was incorporated the following December with about 1200 inhabitants, 18 two-story brick buildings and 30 frame houses, with contracts let for many more. Capitalists and their agents flocked here from all over the world, and soon the news was sent broadcast confirming the marvelous growth and great mineral resources. The Warrior, Cahaba and Cooda coal fields were estimated to contain enough coal to form a block 10 feet thick and cover more than 4,000 square miles of area, more than 42 billion tons for available use, enough to last 11,000 years at the rate of 10,000 tons per day. And to the south lies a mountain of iron 25 miles long, and lime kilns and rock quarries galore."

Mr. Brendle's response uncovered one more orator member of the Southern Textile Association, and his delivery evoked much applause. Only a lack of space prevents its being reprinted in full.

Following this address, President Bowen delivered his semi-annual address, which was followed by the able paper, "I Serve," by S. J. McCaughrin, of Birmingham, extracts from which follow under separate heads.

JOE E. BRENDLE.

In the afternoon the members were taken via. electric train to the model village of Fairfield, where a few brief talks were made and sandwiches and coffee served. On the return trip the delegates were guided through the yard of a steel mill at Ensley. In the evening the members and their friends were entertained at a smoker in the ball room at The Tutwiler.

The second session was called to order at 10 o'clock Saturday morning, with President Bowen in the chair. The first address to be scheduled was by J. T. Rose, Treasurer of the W. R. C. Smith Publishing Co., of Atlanta. Mr. Rose prefaced his prepared address—which is printed elsewhere with the other convention addresses—by giving a brief extemporaneous talk derived from his wide experience in the steel industry and said in part:

Government controlled by the Government instead of by special interests or class organization is a wise suggestion at this time. Industrial enterprises controlled by and for the benefit only of those enterprises, and not for the individual benefit of any officer, director, or stockholder beyond his proportionate holdings in the company, is being demanded more today than ever before. It used to be that a company's surplus, as shown on its balance sheet, constituted a fair basis for credit, but today the lender of money investigates as never before, the character and efficiency of the men directing the affairs of the institution.

In order to secure favorable credit, both in amount and rate of interest, the president or directing head must be a man whose character is such that before he would allow the assets of the company to be depleted for the benefit, either directly or indirectly, of any individual, he would resign his position, and by this act serve notice on the creditors to investigate the affairs of the company.

Next, the Board of Directors will be investigated in the same way. While the cases have been isolated, much publicity has been given to a few cases where directors have wrecked companies for their own personal gain. Such men should not be directors, and if you have any such on your board, you, in the future more than in the past, will have to pay the price if you keep them there.

Next the efficiency of your organization will be investigated. The day is past when the investing public looks with favor upon a one-man institution. A collective organization where each man has his particular duty to perform, and is held responsible for the way in which he performs that duty, is looked upon with much more favor than an institution where one man undertakes to be responsible for the detail of all departments, regarding the men in the departments as clerks only.

Connective organizations necessitate rather frequent and systematic conferences among the heads of departments, in order that responsibility may be properly located and the work of each department properly defined. With the duties and responsibilities of each department thus thoroughly defined, with practically no over-lapping between departments, results will determine the ability or inability of the man for his position.

The next step is to have a man whose duty it is to schedule the work through the several departments—to see that there is no lost time in semi-finished material getting from one department to another, and the finished material being shipped to the customer on schedule time. This man must be in frequent individual conferences with the several heads of departments, and at the general conferences each department head must commit himself as to what his department will do in the delivery of semi-finished goods to other departments, and he must be held to strict account for the promises made.

At these meetings, do not fail to have either some member, or a stenographer, record all of the important items discussed, giving the conclusions reached, or stating when further discussions will he had, and also all promises made by department heads, from the purchaser of the raw material to the shipper of the finished goods. A written copy of this report should be given to each man present as soon after adjournment as possible, and this report of the preceding meeting should be read as the first order of business at each meeting. The president or managing head of the institution should give careful general attention to all of these matters, for it is upon him, his officers, directors, managers, and overseers, that the success of the institution depends, not only in the quantity of goods produced at the proper prices, but also the economic financing, without which it is difficult for any concern to hold its own, and is practically impossible for it to enlarge.

The next address was by Dr. E. H. T. Foster on the Young Men's Christian Association as a factor in the textile industry. He was followed by President T. H. Rennie of the Pell City Manufacturing Co., who discussed the relation of the employer to the employee.

After considerable discussion, Asheville, N. C., was selected as the location for the June, 1915, meeting and because of a special understanding in regard to the holding of a machinery exhibit in connection with the November, 1915, meeting it was unanimously voted to hold that meeting in Greenville, S. C.

One more honorary member was unanimously placed on the Association's roll in the person of Thomas H. Rennie, who has, perhaps, assisted more worthy men to promotion during his 29 years of southern mill experience than any other one person in the industry.

The meeting as a whole was interesting, enjoyable and worth while. Speaker after speaker stressed the need for cooperation. Team work in the mill as well as in the Association was shown to be not only important, but absolutely necessary to complete success. The merging of the individual and his efforts into the complex organization with which each was connected for the final betterment of the whole was the dominant note of the entire meeting.

Decidedly it was worth while.

THE PRESIDENT'S ADDRESS.

BY E. E. BOWEN.

"When I look upon the magnificent buildings which mount skyward as if in a supreme effort to pierce the celestial dome, I am convinced that there is here in Birmingham that spirit of cooperation and solidarity, which has been a potent factor in the rapid growth of the Southern Textile Association.

"And as I notice with peculiar interest the fact that as each new building goes up, it surpasses its neighbors in grandeur and stateliness, as if to get a broader view of the ever-widening circles of our industrial arena. It occurs to me that there is a great moral lesson for each of us, in that we should each strive to surpass our neighbors and rise to heights of greater efficiency.

"But before I proceed, I want to thank you gentlemen for coming. The size and the personnel of this assemblage shows that the superintendents and overseers yet have implicit confidence in the Southern Textile Association, and by coming here they show that they expect to profit from the program.

"Men don't leave their homes and their work and travel hundreds of miles just for the pastime of riding on railroad trains, or of seeing the skyscrapers, but they go because they expect by so doing to gather useful information. They do this by coming into contact with men who know, and men who are not so hide-bound that they refuse to exchange ideas with their fellowcraftsmen. Nor do they come in vain. I could cite instances where men have come to these meetings perplexed, because of local conditions that placed thier own

positions in jeopardy, and their hard earned reputations seemed about to take flight. And then I have seen those same men return to their work bouyant with renewed energy, because they had found men who had freely opened up their fountain of knowledge and pointed out to them the obstacles that stood in the way of progress and the success of their mills. And therein, gentlemen, is where we benefit most. The papers on the programs are always prepared with much painstaking effort and are indispensable; but the heart to heart talks with the fellowcraftsmen is the milk of the cocoanut. So, gentlemen, if there happens not to be on the program a paper which is adapted to your individual requirements, or which does not cover the point of greatest interest or perplexity to you, do not return to your home without getting the information desired. But remember that the good book says "Seek and ye shall find." "Ask and it shall

PRESIDENT E. E. BOWEN.

be given unto you." That doctrine is particularly applicable in this association. I care not how deep the subject or how puzzling the question, there are men in this association who are equal to any occasion that may arise in the manufacture of cotton textiles.

"I am glad to see the good fellowship that permeates our membership. If this association is ever to come into a full realization of its mission, good fellowship must at all times permeate its ranks, and selfishness and littleness must be forever kept out. We must cooperate, for no man can stand alone in this day of modern commercial life. Each one must depend to a great extent upon the other. It makes no difference in what environment fate has placed a man, he has his influence and it behooves every man to do his utmost to pick the thorns from the path of his fellowcraftsmen, remembering that the Holy Writ tells us that "whatever a man soweth that shall he also reap."

"Neither does our duty stop by serving our fellowcraftsmen, nor does it cease when we have exerted our every energy to serve our employer faithfully and profitably, because there has been placed under our charge countless numbers, for the shaping of whose destiny we are largely responsible, and who are looking to us for guidance to a greater efficiency.

Then the question arises what is the best method to employ to bring about this state of excellency or to build up an efficient organization in our mills. Is it by strict discipline and its ally, force? Here I place a question mark. When you put a man under the ban of strict discipline he becomes a mere machine. And the harder you grind, the more inefficient that machine becomes. There was a time when the most tyrannical rules could be enforced, and in some instances were enforced in our mills, but those days are past. Men have learned better methods of management, and as a general proposition you will find that the man who boasts most of his rigid discipline has less of it than the man who never uses the term.

"By force and discipline Bismarck and Von Moltke wrested from France the provinces of Alsace-Lorraine, and today we find three-fourths of the world at war because of the sting left by that show of force and discipline.

"Napoleon Bonaparte gathered for himself great armies. He set up an empire and came near conquering the world. Force and its ally, discipline were his instruments. For a time everything looked as roseate for him as could have been desired. Nations crumbled before him and dynasties were overthrown by him. Force worked magnificently but his brother could not hold the throne in Spain. His armies could not hold Egypt, and finally he, himself, found that he could not hold his grip in Europe. He had builded upon force and had failed egregiously.

"Then it was the 'Little Corporal' is accredited with saying, 'The more I study this world, the more I am convinced of the inability of force to establish anything durable.' And who is there here to question the judgment and generalship of that great soldier? He knew men as perhaps no man besides him has ever known them.

"By force and discipline Julius Caesar, in violation of law and custom, crossed the Rubicon and marched for the first time in history a great army right up to the Forum of ancient Rome. But force would not endure and before Caesar had reaped the full fruits of his victories the sword of Brutus pierced his breast.

"And then the mighty carpenter of Nazareth taught us that force will not endure, when he said to Peter on that fateful night in Gethsemanee, 'Put up thy sword, because they who live by the sword shall die by the sword.' What was true of force in those days is all the more true today, because as men become more enlightened and learn more of the teachings of democracy, the more rebellious they become against force or any of its allies.

"But gentlemen, I am glad to say that those old methods are being relegated and that the progressive superintendents and overseers of today are using diplomacy and newer ethics where there once were used force and discipline. And any man who is not blind to actual conditions can see the results. I am perfectly frank to say that there is no comparison between the morals, intellect and efficiency of the mill operatives of today and those of ten or fifteen years ago. And, gentlemen, I say without fear of contradiction that the influence of the South ern Textile Association has been one of the greatest factors in bringing about these desired results. But in making this statement I do not wish to be misunderstood as underestimating the great good that is being done by the several forms of welfare work, and especially that of the Y. M. C. A. and the Y. W. C. A. It has been my good fortune in the past few years to witness the great

improvements in the lives and morals of our people wrought by the influences of these great institutions, and we should encourage and support these organizations. I hope it shall always be my happy lot to live in a community where these institutions are maintained.

"I cannot close without saying a word about economy, which is so closely related to efficiency, but which I say is dragging far behind its cousin. The business world today is demanding that waste be turned into profit. So we must teach our people to thoroughly understand everything that tends toward economical methods. We should teach them also by example to practice economy in the domestic life, because there is no operative so industrious or so contented as the man or woman who has a steadily growing bank account, and this cannot be had except by the strictest economy, whether the wage be high or low (a fact which some provokers of social unrest seem slow to stress).

"In conclusion, I wish to express my sincere appreciation for the hearty support and encouragement that is being given our association by the mill presidents and other officials. Thus, with the cooperation of all I bespeak for the Southern Textile Association a permanent value in the economics of the Southland; not an effervescing bubble on the wine glasses of anarchists, but a fabric in the process of weaving. An endurable fabric, with efficiency worked into its very warp and weft by the shuttle of aggressiveness, and the harness of industry. A fabric I repeat which shall represent the intermingling of ideas and the interests of operatives, overseers, superintendents and presidents. A real homespun production peculiar to Dixie."

ICH DIEN. (I SERVE.)

S. J. M'CAUGHRIN.*

In keeping with the President's recent proclamation advising all Americans to observe strict neutrality, I have selected as the subject of my talk, "Ich dien," an English motto, in the language of Germany.

"Toil," says the proverb, "is the sire of fame." Whether we dignify our vocation by calling it a position or simply speak of it as a job; whether that job be official head or the position be day laborer, both serve, both work and are paid accordingly and it is to this service I would direct your attention.

The acceptance of a position, no matter what that position is, should carry with it admitted responsibility, an obligation and a contract to make good, and unless you believe in and are a champion of the people who employ you, get off the pay roll and hunt a position with which you can agree. The man who does not meet these requirements fully and willingly is pocketing his salary under false pretenses and is no better than the man who knocks the business which furnishes his daily bread, and this man we all regard as a coward as well as a thief, whose crime is as great as robbing the cash register.

An employee is worth only what he contributes to the business of which he forms a part and with every muttered protest or half-hearted performance discounts that worth, regardless of ability, hours of work or application.

Salary by no means signifies that the employee is a slave, but only that he is one of the component parts of a business enterprise, on whom the head of that enterprise depends and on whose loyalty and service he can count. Just as in matters of government the officers, all along the line, represent that government and are in honor bound to carry out the policies of their superiors; so the employee should stand loyally by the enterprise which provides him a home, and do his best; and if he cannot do this and must sulk and knock, he should first get out into the open and cease to be a sneak. Put yourself in the other fellow's place and try to realize the damning ingratitude of the man who takes your money as he cuts your throat.

Appreciative responsibility is the one thing the industrial world seems to need more than any other quality; not only willingness to work but a realization of what is due the employer and what goes with the position. To do one's best there must not be labor alone but a personal interest in its performance; there must be elbow touch with it every day in the week as its friend, not as its slave.

Labor, and by this I mean all service, should not lose

S. J. McCAUGHRIN.

sight of business integrity as concerns itself, and should have a realizing sense that in helping the man higher up they help themselves; that responsibility is a potent factor in holding a position. That an employee should be ready and willing to protect and advance the interests of the concern he represents; he should know that responsibility, dependable responsibility, always means promotion to the limit of equitable recompense and oftimes a lifelong position. The man who can be relied upon never has cause to worry about hours or wages; he understands and knows that clocks and whistles are business essentials which serve to mark, but cannot rule the hour.

There are times when every employer is in need of prompt and unusual assistance; when necessity will not be denied; when the demand is for more than hired hands. The call is for men of unquestioned loyalty, who know how and when these are found, promotion follows with its accompanying increased pay.

We have all heard the sullen roar and rush of a great factory cease; something has gone wrong; shafting, pulleys, intricate machinery are motionless; hundreds of employees stand idle; the tension of teeming, orderly activity has

*Manager Mill Supply Department Young & Vann Supply Co., Birmingham, Ala.

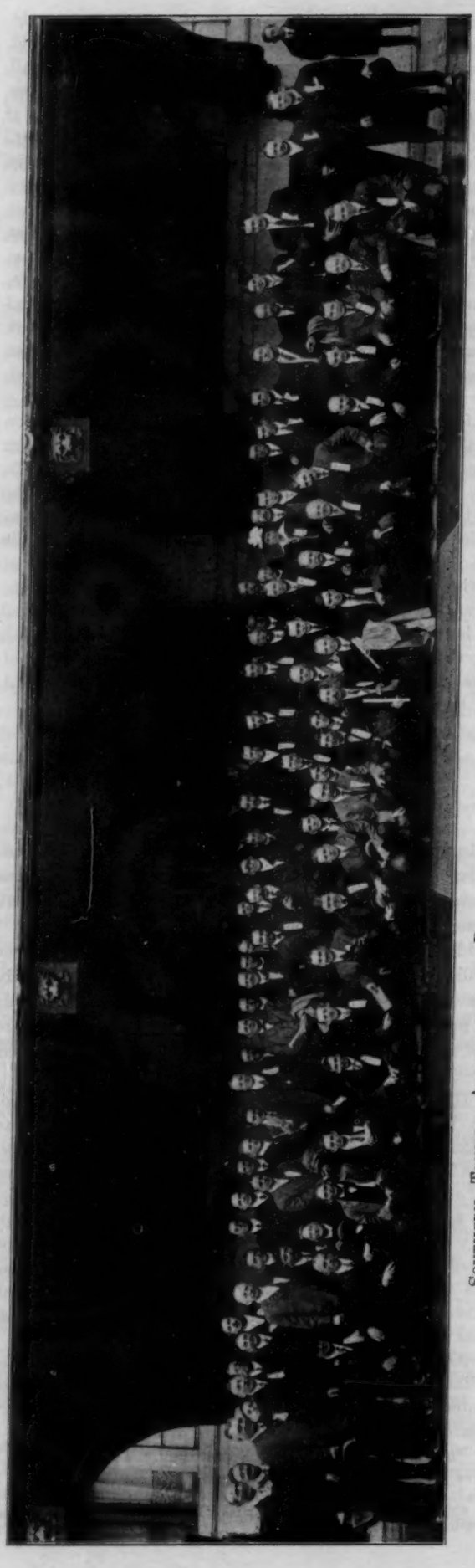
given place to silence; heads of departments hurriedly consult 'phones or speaking tubes and all faces seem to ask the question, "Where is he?" A moment later the man appears, *the man who knows how,* and the whole mill is transformed into a throbbing, humming hive of industry as if by magic. Death knocks at the door and the head of a great commercial enterprise is called hence. Millions are involved, a long line of lesser concerns and an army of people dependent; the halt is but momentary, for there is another man who knows how, who quickly restores confidence and order where chaos reigned. In every great enterprise, in every avenue and artery of commerce and manufacture, covering the gamut of mental capacity or mechanical skill; in every city, village and hamlet there is the one forceful individual on whom we rely. *The man who knows how.*

There is nothing obscure or hard to learn about success in life, as no man possessed of normal brain and observant eye reaches his majority without a full knowledge of the real requisites, which, when told, resolve themselves into two words, *honesty* and *industry.* Not the dull, plodding, purposeless sort, but live, energetic effort of both head and hand. About each of these plain essentials is grouped a mighty host of synonyms, each has many definitions, but from the standpoint of mankind in the making of reasonable achievement and prosperity these satellites when blended together into the sun of success, comprise after all only these two words *industry* and *honesty.* Talent figures in the total as does kindness, cheerfulness and courtesy and I am a firm believer in fate, but a fate which must be, and is, largely under one's own influence. Environment, condition and opportunity enter into the equation, but when the book is balanced it will contain more than a little of your own making.

All men are not equal, though all men are entitled to an equal possession of wealth and industrial reward, commensurate always with the talent God gave and the use of it. To the wise man success is the golden mead of happiness, contentment and possession, gained through honest toil without miserly abasement or a life of nothing more than board and clothes. Success, with its comforts and pleasures comes to the fellow who is neither ashamed nor afraid of the treadmill and who willingly dons the collar of every-day endeavor; for not only does capital hunt him up and pay him wage from foreman to executive head; and not only does he always have a job and a good one, either of his own or with some one who wants him more; but he is known and is honored of all men as one who represents honest, industrious and intelligent toil. Better men are always in demand in these days of feverish competition and he is certain to be discovered if he deserves it.

We should be thankful for the law of averages which eternally spurs and halts and urges on once more the sons of men and fairly proportions life; for without this law there would be the stone wall of irrevocable fate with a world stale, flat and miserable because all of one mind. Existence under such conditions would be a bore. How much better to have some strife, some turmoil, many sided hopes and ambitions that come with an intuitive knowledge of what is needed to make happiness, point the way and complete and crown human achievement.

The one quality of service which has most to do with industrial destiny is courage. Courage which resolves itself as pertaining to affairs of every-day life into the elements



SOUTHERN TEXTILE ASSOCIATION AT BIRMINGHAM, ALABAMA, NOVEMBER 13 AND 14, 1914.

of common sense, daring to do, and, to use a homely phrase, a stiff upper lip. The courageous man secures and holds a responsible position, even though he may have in his own mind serious misgivings of his actual ability, over a man of equal ability though of less courage; while the timid man does not dare and stays in the old rut. The courageous man meets with disaster, but faces it with a stout heart, grappling with the difficult problems and solves them through courage and reliance on his powers; while the timid man never knows, seldom getting over his first jolt. If he has courage and believes he is fated to succeed, he may suffer disappointments, yet he will win; but if he fears, if gloomy prophecy is his habit and the dread of defeat stands always at his elbow, he as surely fails.

Faith in yourself is a prime essential, but faith won't move mountains. Mahomet gave us the last word on that subject years ago. But faith backed up by effort does, if rightly directed. There is always a tomorrow for the man who tries and, facing the world unafraid, believes in himself. It is the coward who sits in the shadow and looks back on yesterday's dreary waste of lost opportunities.

This cry of lack of opportunity is the whine of the weak, the vacillating, the man who is afraid of work. Chance waits at every turn of life's lane, and every business transaction, every job is an opportunity to the honest, courteous, manly man, and through these transactions he makes friends who help him on in the world. Most hard luck stories are confessions of human weaknesses, willful and known indiscretions or downright and admitted errors. Admitted failure simply means you've been found out.

Mind is dominant, and if mentally worth while we become what we believe. While to believe in honor, truth and success will not cure all ills, still confidence in self, in shaping and making smooth the highways, will go far toward helping ourselves to bear burdens and get over the occasional rough spot.

Some one has said that the world is a mirror in which we see our own faces; that it reflects only such moods as we ourselves wear; that if we smile, the mirror smiles back; likewise it returns frown for frown; and this is true in the sense that the world means humanity. It is the man with the smile who is always welcome and on whom fate or fortune is most likely and most willing to confer her favors. Nobody wants to touch elbows with the grouch, or the peevish and long-faced pessimist who refuses to believe in anything or anybody, damns the past and present, and discounts the future; who suffers from a form of mental trouble, the predominating symptoms being an unwillingness to believe in or say a good word for anyone and an ever present purpose to criticise and abuse. This last trait, generally speaking, is but the reflection of the mirror, an echo from the heart.

Be a booster. To lift, to raise, to push on to something higher and better for self and others, to help either literally or in a material sense to human contentment and success is surely the beginning and end of our reason for existence. The man who boosts, like the man with a smile, is always welcome regardless of time or place. His confidence, his energy, his kindly greeting, his smiling encouragement and helpful sympathy inspires and compels success and to a stumbling mistaken wayfarer, who has been or is up against it, is worth more than all the sermons or the "I told you so's." I don't mean the indolent and smiling don't care good nature, for this is a vice rather than a virtue. Blessed be the booster, for he shall inherit not only his full share of a kingdom when the time arrives, but he has a large share of it here.

Watch your hat band closely and don't let it unduly elongate. The casualty list in Europe the past three and a half months is hardly up to the world's yearly record of victims of the swelled head, who, while not really dead, might better be. People detest a blowhard and bluffer fully as much as they do a liar or a loafer; on the other hand swelled headed fools figure that it matters not what a man thinks of himself, so long as others think he is right; as we all know, they are wrong. Tell a lie twenty times and you begin to believe it yourself, forty times and it becomes firmly established in your mind as a fact; but best be honest with yourself at all times and not attempt to justify your bad breaks with reasoning which you know is not sound. If others deceive you, and they will, see to it that you do not deceive yourself, for a man who understands himself will never mistake another's work for his own.

Every one should think well of himself but don't overdo it, else you may wake some day to a full and sorrowful realization of the fact that you have made a bad use of brains. Many over-rate themselves and ruin careers which would otherwise have been successful. Because some friend tells you that you are a born business man and ought to be sleeping three in a bed with a Rockefeller and a Morgan, don't turn your check book loose and go broke; likewise if someone tells you that you are unusually bright, don't get chesty and offer to bet on it, as your adviser may have bad judgment and you lose the bet. Many a man is inflated by fool friends until he expects too much and falls flat.

Ambition and a desire to better one's condition is praiseworthy, but before you decide on a radical change, stop, look and listen, for while there may be room at the top, perhaps when you reach that high altitude the climate will not agree with your rheumatism.

Another word of advice, don't pass up the pleasures of life, but get a reasonable share, enough to relax you and in just such proportion as you can afford in time and price, but be not extravagant with either. Nature never intended man to sulk in the shadows of selfishness, sorrow or greed and the man who buries himself in workshop or office, with no thought of pleasure or reasonable relaxation and only intent on the duties of the daily grind is a fool. He may leave a tall monument to mark the hole he finally crawled into; but to family and friends he was dead when he became a machine, and never did learn the true meaning of life as nature and nature's God intended.

Russell Sage, that prince of misers, boasted that he never took a vacation in his life, nor did he ever give a penny without expecting profit. He is up against a long vacation now, having left behind him all his hoarded wealth and a reputation which if made into a history of his life, would interest none except as an example to deter.

"Know then thyself." There is no need to sigh for worlds to conquer until you have conquered yourself. Alexander well nigh enslaved the world, but died in debauchery because he lacked the power to rule himself. To influence others you must begin with yourself and it is the successful effort at self conquest that makes you strong to do. Our greatest weakness is self indulgence. Our greatest strength, self control. After all, this life affords but one sovereign—that sovereign is yourself.

SIDE LIGHTS ON THE SMOKER.

BY COTTON'S CONVENTION REPORTER.

Believe me, Bo, that smoker was some smoker. To begin with, they walked me all over Ensley in the cold and fog showing me the blind side of some blast furnaces and a whole lot of perfectly beautiful freight cars. Those cars were dandies. They brought back the memories of the hobo days most of us have experienced, and that made me hungry. That entertainment committee were students of human nature all right.

Well, after seeing the freight cars and getting hungry, we beat it back to The Tutwiler and there I found Ed Bowen trying to get Scott Maxwell or Tom Rennie to act as toastmaster. I couldn't see the point then, but am now inclined to believe that Ed either had advance information or a "hunch." This doing the toastmaster act without the toast is sure something else.

MISS FLORENCE KELLY.

A member of the entertainment committee advised me not to eat any dinner, but to wait for the refreshments to be served at the smoker. Evidently he didn't see those freight cars. We were good soldiers, however, and obeyed orders literally, but that clock was the slowest thing I saw in Birmingham. It looked like it would never get 8:30.

When I reached the ball room, where the festivities were to be held, I found the chairs all stiffly lined up as if ready for a meeting of the Woman' sChristian Temperance Union, and not an eat in sight. Draping myself gracefully over a chair, I awaited developments. He came after awhile. He was a short man with a stubby moustache and a box of Principe cigars. I'll leave it to you, Bo, did you ever hear of serving the cigars first? It must be a Birmingham fad. I asked him if we were to have a bottle of "Bud" along with it and he told me to go to the bar. Must have took me for a lawyer or a prisoner. Maybe it was because Frank North was on the water-wagon.

After a while Ed Bowen called the smoker to order (another new stunt) and introduced Tom Rennie as the first speaker. Evidently he had it in for Tom because he wouldn't be toastmaster. Right here, Bo, I want to direct your attention to another innovation. We had the talks before the eats. Maybe they thought a man would talk better or say less on an empty stomach.

After Tom had completed his diffident remarks, Lon Iler grabbed the floor (not literally, you know) and proceeded to introduce some real musicians. No, they weren't natives of Birmingham. They came from the same place Kurtz, the starch man did. Up around Columbus, Ohio, somewhere. Lon, he made a mess of it and handed a bunch of mean remarks to the mixed quartette that furnished the music at the Isle of Palms last summer, but then you know how Lon is when there's a pretty woman in the bunch, and believe me, son, that Columbus dame was some swell looker. Had her hair done up in a dufunny on top of her head and pulled down over her ears, on each side, to make her look French you know, while her eyes and complexion were as Irish as her name, which was Kelly.

Well, she came out and sang that Tipperary marching song that all the English "tommies" are crazy about, and everybody forgot how hungry I was and went to patting their feet. No, they didn't pat them with their hands, they patted them on the floor, just the same as a woman does when she's mad. As this Kelly girl looked the best of anything we'd seen in Birmingham, everybody insisted that she sing again. About this time, fat old Jack McLaughlin, the size demonstrator, came meandering up the center aisle, wearing a half-burned cigar and a facial expression which indicated he was not quite sure whether it was today or yesterday. The dame also looked good to him and being somewhat near-sighted, he beat Scott Maxwell by about two chairs in getting up front. As Scott was too well known in Birmingham for her to tell any tales on him, she selected Mac as her victim and proceeded to tell us, to a musical accompaniment, that "He's a Devil in His Own Home Town." I am sorry to have to tell you that Mac failed to uphold the traditions of Rhode Island gallantry and didn't kiss her when she asked him to. You should have seen the envious glances. Later on, Algie, the starch man, gave her one of COTTON'S steel tapes, but she told him she didn't need anything like that to take *his* measure. Becky Ann got one of the Kelly girl's pictures to put in her paper on the same page with hers. Contrast, you know, and all that high-brow stuff. I tried to get one of them for COTTON, but Florrie said COTTON'S readers were too susceptible and as she couldn't afford a social secretary to take care of her correspondence, she would have to withhold the photo. I offered my services, gratis, but she said my being a married man disqualified me entirely.

Some little runt sung us a song or two, after which being hungry, they skidooed for the lunch counter. Ed then called on Dave Clark to talk on optimism. This was another joke of Ed's, as everybody knew that Dave had lost a ten spot when cotton, in Charlotte, failed to go down to six cents.

About this time Joe Rose came sauntering in looking as unconcerned as a cat after it has eaten the pet canary. As a matter of fact Joe was wise and when he saw the eating prospects he had hiked for the dining room where he made eyes at the cashier and absorbed club candwiches, etc., (note the etc.). Seeing Joe's bald head coming through the doorway, Ed thought the moon was rising and this gave him an inspiration. Therefore, he immediately called on Joe for a talk. Joe is some fancy talker all right, but he didn't know what had been said while he was sandwiching, so he told us

the same thing Tom Rennie had already told us, only in other words, but we were too weak to protest by this time.

After awhile Ed took pity on us and told us to come up to the corner and help ourselves to the eats. Say Bo, you should have seen those Hugo Munsterberg sandwiches. Pure theory! Hills, the Boston grease man, happened to have a copy of the Christian Science Monitor in his pocket and he got by. It cost my company a dollar and a half to square me with my stomach afterward. Atlanta, a dry city, served us with (Oh, whisper it gently), while Birmingham referred us to the bar. Birmingham always did have the reputation of being a strictly business town.

That sandwich proposition was too much, so Ed called on Bob Westbrook to blow the whistle, and being mill men, we all went—I was going to say home, but being strictly truthful, I can't. There is an old saying to the effect that if you laugh you'll grow fat. Take it from me, there's nothing to it. I laughed that entire evening until my sides ached and then went and weighed, expecting I had gained at least 25 pounds, and horrors, I found I had lost four. That's when I spent that one-fifty. Take it from me, Bo, when you go to a smoker in Birmingham, always eat first.

P. S. I borrowed that photo from Mill News so you could see how she looked, but don't you dare to write to her.

THE TEXTILE INDUSTRY—SOUTH.

J. T. ROSE.*

Twenty years in the manufacturing business and the close association with other manufacturers, has permitted me to study, and be a part of, industrial activity under varying conditions. From 1896 to 1905 was a period when men with foresight, forethought and confidence in the future enjoyed the respect and cooperation of their fellowmen. These men believed that the industrial upbuilding of our country by enlarging and perfecting our plants and organizations would result in the common good. They believed that accumulated wealth could perform more and better service by being invested in factories and mills, giving employment to American labor at American prices, than in any other way. They knew that the greatest asset of a country is its people, properly trained and directed, and that constant employment under reasonable conditions and associations are the first steps toward advancement and happiness. They were not philanthropists. They expected a reasonable return to both labor and capital, and the motives of these men in most cases were high and noble. They knew that one class cannot ultimately succeed by the impoverishing of some other class, and that their only chance to prosper and get returns on large investments of capital, was in seeing those around them also prosperous. The very foundation of their plant was that they would contribute their full share to the general good.

The presiding officer at the recent meeting of the Iron & Steel Institute, held in Birmingham last week, is an example of such men, and fortunately his official position has permitted him to demonstrate to the world, and put into practical operation, the ideas of the men of those days.

A great many men, however, have fallen under the onslaught of a wave of unrest and demagoguery which has prevailed in recent years, and many a noble and dignified character has either withdrawn or gone down under the flood of criticism, manufactured either from ignorance, or for selfish purposes, and distributed by minds poisoned by muckraking journals and organizations whose very life depends upon an appeal to inequality and unrest.

Some abuse of power prevailed in both these periods, but such has been the exception. In the one, industries flourished, mills were built, and profitably operated, labor was employed continuously. Could those conditions have continued, with assistance from those in authority instead of complete intimidation, better mill conditions would have resulted, and other conditions which are now being fought for would have been inaugurated without the asking. No mill or factory can be forced to do the impossible by some body of men passing resolutions, or some legislature passing laws. Profits are absolutely necessary in the successful conduct of any business. Money in the form of building and equipment is only past labor accumulated, without which daily effort on a large scale would be impossible. Industrial development, therefore, depends upon the harmonious and mutual employment of past and present efforts of men. They must work in harmony or work destruction. As the destruction of the one falls upon past efforts, and the other upon present efforts, the latter feels the pinch of retrenchment or suspension first and more severely.

Have you materially increased your capacity or your earnings in the last few years? I am told you have not had a good year since 1907. Results have causes, and while we cannot go into a discussion of these today, we should, each of us, canvas the last few years in our own minds and if possible find the basic causes of these unsatisfactory results, and by concerted action, undertake to overcome them, not relying upon somebody else to do what we think should be done, because it would entail some effort and expense on our part.

To me, the future looks brighter. Politically, the demagogue has almost run his race, and his constituents are demanding constructive rather than destructive work. The muckraking periodicals and newspapers have found their subscriptions dropping off and sales decreasing—an evidence that the public eye no longer desires to see men of high character and broad vision pictured as criminals, or the assets and profits of enterprises destroyed because they are either large or prosperous, or both.

From information recently gathered over a large producing section of the country, I believe that all manufacturing lines, and especially cotton, is at the dawn of wonderful development. You may say, you see no evidence of this. The general manager of sales of one of the constituent companies of the largest corporation in the world told me a few days ago that he could close his eyes and see literally millions of tons of his products that would have to be purchased and consumed within the near future. This is only the vision that any big man must have in order to do big things. Nations are almost begging for products suitable for their use and on terms and conditions to which they are accustomed—products, the raw material for which we produce. In the past, however, we have been content to sell the raw material, allowing other nations to invest their money in mills and equipment and give employment to their labor in the manufacture, transportation and sale of the finished goods. We have been refusing customers almost at our very doors, either to make suitably finished materials, or arrange satisfactory conditions so we could market our finished product.

The greatest engineering accomplishment of the world—

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the Panama Canal—coupled with the greatest catastrophe the world has ever known—the European war—have brought our opportunity to our doors and it knocks for entrance. Yes, we are going to open the doors; yea, more, we are going out to meet this opportunity. We shall prepare our table not with what we like and enjoy, but with what they are accustomed to and negotiate terms of settlement mutually agreeable to both. Then our factories will operate to capacity, our furnaces give forth flame, our mills and still more mills will consume, not six million bales and export nine million, but consume nine million bales, and export six million bales. Then shall we increase our present normal balance of trade from 550 millions of dollars to 850 millions of dollars, this excess of 300 millions of dollars going to enrich our Southland and the larger part of this increase going to our operatives. Think of dumping 300 million dollars more money yearly into one section of our country; and the carrying of all these products to the four corners of the earth in American owned and American manned vessels.

These things are coming and the gentlemen in this room must play no small part in the doing of the greater things that are to be done in the next five years. The industrial pendulum may have swung too far in each direction, but even a casual observer can see that it is now coming back from its last swing. Thinking men are giving attention to other thinking men who may differ from them, and the "Holy am I" man has almost entirely been eradicated. Honesty of purpose and mutuality of interest are being generally recognized, and cooperation in the broadest sense of the word can and will, produce nothing but the best results. The more progressive mills and factories are no longer operating on the basis of individuality, but rather on the basis of the whole organization doing "team" work where the individual does his particular part, assuming that each individual of the organization will do his part, the result being the combined effort of all.

Many of you here today hold the rather difficult position of being the known between two unknown—a most important and difficult position. As managers and overseers, *you* are the mirrors in which your companies are seen by those, the nature of whose work is such thtat they cannot come in contact with the men who direct the policy of your mills. The hundreds or thousands of workmen under you have regard or disregard for the company and its interests, depending upon the way in which they regard *you*. As *you* take an interest in those whom you supervise, as *you* are pleasant or gruff, just or unjust, methodical or slothful, radiating cheer and success, not gloom and failure, so will your company be regarded. If you are out of accord with your company; can't willingly and cheerfully carry out the policies adopted by them, then you cannot impart these policies to the men under you and secure results to the fullest extent—you are really unfitted for your position and should resign.

Many men kill their usefullness by failure to execute the plans adopted by the majority, or those in authority, because the plans adopted are not *their* plans. Worse still, some men even find fault with and criticise policies to the men under them. Should you do this you should remember that in so doing, you are spreading discontent throughout the mill, you are destroying the confidence of others in the management and you are indirectly telling those under you to become discontented and to look elsewhere for advancement and fair treatment. Such an action is deplorable and unjust, the effects of which continue long after some good man has been put in your place.

Interest in humanity is one of the absolute requisites in a leader of men. Every man or woman under your supervision craves kindness and encouragement from you. Treat them kindly. Do more for them than you have to do. You do not have to "lord" over the men under you. If you can not control them with kindness, they are not what you want and you can discharge them. Set the example and they will follow you. If your domestic life is happy and your moral life elevating, if you study the problems you have to solve, read books and other literature written by men of experience and thought in your line of work, and put into operation these suggestions and improvements; the men under you will become enthusiastic, and will strive to have the general tone and feeling of the mill better than any other one they know. Then the textile industry of the South will flourish as never before, efficiency will supplant carelessness, happiness for you and those under you will supplant gloom, costs will be reduced, expansion of trade will be possible, and you will be doing your part toward fulfilling the prediction that the greatest industrial development of the next five years will be found in the southeast.

THE Y. M. C. A. AS A FACTOR IN THE TEXTILE INDUSTRY.

BY DR. E. H. T. FOSTER.

The manager of a large industry, recently said: "Machinery is 25 per cent of the cost of production—we have perfected it. Labor cost is 75 per cent. The Young Men's Christian Association is helping us to improve it.

In the textile industry, machinery of a high degree of efficiency is being used. Little improvement is expected in this line. The experiences of the last few years, with the diminishing profit margin, indicate clearly that more cloth and *better* cloth *must* be produced from a given equipment. Where and how is this to be realized if not from a more thorough organization and more efficient and contented labor?

The unsolved problems of industry are not in the machanics, finance, or organization, but in the humanics of industry. The human factor, his rights, relationships and conditions, is the compelling question of the day.

Labor is a commodity to be purchased, much as coal, machinery and cotton with the exception that the guiding element in man cannot be bought with increased wages or decreased hours.

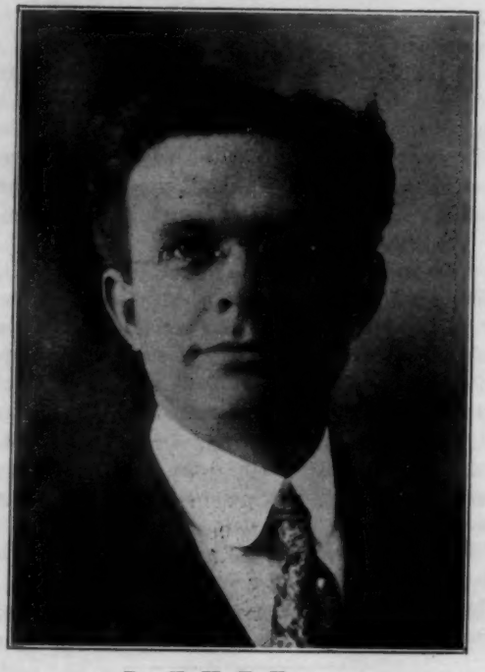
Industry is keeping her inanimate machinery well oiled and in good repair. Her animate machinery, labor, she is only beginning to recognize as needing attention. This marks the dawning of a better day for both employer and employee. But just as formerly it was difficult to induce conservative managements to see the wisdom of discarding old machines for new, so with the methods of dealing with the human factor.

Not only must more attention be given to the human factor in industry in respect to working, living and leisure conditions that effect his material welfare, but we shall find that the basis of all permanently effective betterment is character. At the meeting of the National Association of Cotton Manufacturers a year ago, it was stated that "The *character* of our operatives is more important than the skill

of our sales agent." This epitomizes all arguments which prove that industrial efficiency must have a character basis.

A cotton operator in South Carolina recently said to his people: "We have been able to sell our product months ahead and thereby keep our plant running during these war times. The *character* you are putting into your work has contributed much to make possible the sale of our product."

The last report of the Labor Bureau of North Carolina gives the mills of North Carolina a capital stock of about $52,000,000 and an employed force of about 57,000. Figuring the average wage of males at $1.85 and females at $1.15, the annual wages amount to about $26,500,000, or about one-half the capital stock. Figuring on a basis of 10 years, the total wages would be $265,000,000. Let us say that the mills spend annually for repairs and upkeep on



DR. E. H. T. FOSTER.

machinery 10 per cent of the capital stock which would be $5,200,000, or in ten years, $52,000,000. In other words, the cost of production is divided between machine and labor as one is to five. Labor expense costs five times as much as machinery expense. If labor is anything like as important and expensive a factor in production, isn't it reasonable to expect that money be invested to keep it well oiled and in good repair?

The physical welfare of the worker is fundamental to efficiency. It is not necessary to state in this presence what an epidemic of contageous disease will do to the production sheet. Statistics indicate that the average serious illness per capita is usually about two weeks each year. This is about 4 per cent of the year. Expressed differently, 4 per cent of the population is constantly sick. The number that suffer partial disability through undue fatigue, constitute the majority of the population. Yet if only 50 per cent of the population are suffering an impairment, equal to only 10 per cent of its working powers, the result is equal to 5 per cent of the population suffering total impairment.

These figures, estimated by a recognized authority, Dr. Irving Fisher, indicate that 9 per cent of our total population are sick or not able to work. What would result in your mill if 9 per cent of your equipment was constantly useless? Industry must be concerned about the physical welfare of its labor.

Labor has unlimited capacity for development. Since in labor we must recognize the human factor, development must be experienced or the reverse will be true. As human beings, we are getting better or worse day by day. To keep up the pace demanded labor must know increasingly more about the machine it operates. Opportunity to study courses pertaining to the daily work must be given. The state should offer night classes but does not. Industry must lead off to conserve its own interests.

It was mentioned that permanent industrial efficiency must have a character basis. When capital employs labor it has a right to expect that labor will not only put in the time, but give the best it has. Labor has a right to expect that working conditions will be safe. Besides the business obligation, there is a moral obligation binding both parties. The spirit, shown by each party indicates to what extent this moral obligation is recognized.

The efficient industrial worker first of all must have physical possibilities, as represented by a strong, healthy body. Second, mental capacity to use intelligently his physical powers. Third, by no means the least qualification is the kind of spirit he puts into his work.

The first two qualifications guided by a *characterless* spirit will yield only undesirable results. The spirit in man is the real human factor. *Character* alone determines the spirit. This would indicate that efficiency has a character basis, therefore the need for character making forces in industry is imperative. It is here that such an agency as the modern industrial type of Young Men's Christian Association offers service and should be more widely used. It is a character making agency, working to a standard, than which there is no higher.

Character is developed through the doing of things. The man who does nothing, likewise has little character. Everybody wants to do something. If this want is sealed and not permitted to find expression normally, there will be an abnormal expression—an explosion. Can you render inactive a normal boy? Give a boy nothing to do and he at once gets into mischief. One trouble with labor is that often self expression is subdued, and something explodes, then the disease, commonly known as labor trouble is epidemic. When God breathed into man the breath of life, he gave him the commission to "subdue the earth," and it will be done one way or another. This spirit of self expression, do something on your own initiative, must be reckoned with if character is to be developed.

The Young Men's Christian Association is a character building force *because* it offers folks an opportunity to do helpful things. It differs from a club in that it does not stop by simply offering an opportunity to get something, but emphasizes opportunities to do something, induces *self-expression.*

The responsibilities for the carrying on of the work of the Association in any mill community is vested in a local board of directors, elected by the active members of the local association. They employ a trained secretary who gives his full time to the development and promotion of the work, adapting its activities to the particular needs of the community. Other members are appointed by the

directors to serve on various committees and be directly responsible for their respective departments. It is purely a work, not carried on for men, but by and with men; decidedly non-paternalistic.

It is a world-wide movement. Every country on the globe is being served by the Association, and every class and kind of men come in touch with its character making forces.

In North America there are 2,575 Associations with a membership of 625,598 men and boys. At this time there are over a hundred Associations with buildings established in connection with a special industry. There are about 190,000 members in industrial occupations. In the textile industry 35 different mill communities are now being reached in an organized way by the Association. Over 3,000 members are enrolled.

The physical work done by the cotton mill Young Men's Christian Association consists of organized gymnasium classes, in which recreative games, such as basket-ball, volley-ball, indoor baseball, and the various gymnastic games are a prominent feature. Outdoor sports of all kinds are increasingly popular. Tramps, hiking and camping are promoted with good results. Other than these active physical activities, health talks and general health education is given its proper place.

Mill operatives not only need recreative exercises but enjoy it. One young man states in its behalf, "Don't suppose I would have been living today if it hadn't been for the Young Men's Christian Association. You ought to have seen me the first night I came to the gymnasium. I was stooped and didn't weight nothing hardly. They used to call me 'Bones.'"

The social features promoted by the Association offer excellent opportunities for the development of self respect and good manners. The sexes are given opportunity to mingle helpfully and under proper conditions. The celebration of the national holidays and events, finds expression in an appropriately arranged social event..

I need say nothing to this gathering about the educational needs of the industrial worker. The Association gladly offers the boys and girls, yes, the men and women, too, an opportunity to study at night such things as they are amibitious to learn. Many have learned to read and write in an evening school. Others have learned to calculate and design, thus preparing themselves for better work in the mill. Last week I saw a strapping fellow, eighteen years of age, who is just learning his letters in the Young Men's Christian Association night school. You ask, does this night school work profit anything?

A former member of the Spray, N. C., Young Men's Christian Association writes that he owes the Association $3.50 for every day he works, because its night classes enabled him to command a better job at $5.00 a day. He was making $1.50 before.

"A common mill hand is all that I would be to-day if it had not been for the Association," declared the superintendent of the largest knitting mill in Chattanooga.

"I was promoted from a dollar a day job to my present position as a result of my study in the Young Men's Christian Association night classes." Overseer of carding.

"Of nine men who completed the course last winter, seven were promoted within the year." A secretary.

Statements such as these can be duplicated many times.

Recognizing that character and christianity go hand in hand, the Association offers a religious program that is distinctive. The efforts of the church are not duplicated. The Association being inter-denominational, has a unique opportunity in any community. Special meetings for men and boys are held when deemed wise. Men and boys are dealt with individually as regards their lives. In the course of a year, many men "turn over a new leaf."

A superintendent says, "Since starting up the Association here last fall, drunkenness in the village has decreased 50 per cent. We have been able to hold a better class of help. There has been less moving. The efficiency of the operatives have, as a whole, been raised 10 per cent."

The community work done by the Young Men's Christian Association, such as gardening, clean up campaigns, home beautifying, fairs, celebrations, etc., develop a characteristic community spirit. To see an entire village take part in a given activity as a community, is a thing to be valued. Community spirit develops contentment.

A secretary of a company says: "I have noted a decided improvement in the attitude of the operatives toward the corporation."

"The institution has become such a necessity that we would not try to get along without it now." A treasurer.

A mill president says: "The Young Men's Christian Association's organization is thorough, its methods effective."

It was said at the last meeting of the National Cotton Manufacturers Association: "It behooves us to devote more of our time and attention to conditions which will produce a satisfied, contented and permanent state among our operatives."

Cyrus McCormick of the International Harvester Co., recently said: "Welfare work increases efficiency—it pays. It pays because it increases the sense of cooperation. It is developing something new—*mutuality, absolute business mutuality.*"

"The product of the textile industry is *cloth;* a bi-product is the character of the workers."

"The product of the Young Men's Christian Association is *character;* a bi-product is efficiency in producing cloth."

RELATION OF EMPLOYER TO EMPLOYEE.

BY T. H. RENNIE.*

The relation of employer to employee has been discussed times without number; has been a subject of much legislation; a fruitful source of strife and discord wherever men have been employed, and, I am sorry to say, is still a matter of controversy.

I do not know what your committee had in mind when they resolved to have this subject part of their program, but I do know this, the more I have considered it, the more I have been impressed with my inability to present the relation of employer to employee to this association in a manner that would be of service to its members. I have thought to evade this question and talk to you about something else, but the realization that you would not stand for a shirker, held me to it. Most of you have been working on this problem for many years and you know that it can not be solved by any known rule. The old ideas drilled into every young man who was on the way to be an employer was "Business is business." Sympathy, help or

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consideration for the employee was eliminated; that the employee was one of the most valuable assets of industry, was not in evidence, and that cooperation and mutual confidence were not recognized in the partnership.

Andrew Carnegie in his book, "The Empire of Business," compares the scheme of the world's work to the three-legged stool. I quote it here because, to my mind it is a classic on this subject.

"There is a partnership of three in the industrial world when an enterprise is planned. The first of these, not in importance but in time, is Capital. Without it nothing costly can be built. From it comes the first breath of life into matter previously inert.

"The structures reared, equipped and ready to begin in any line of industrial activity, the second partner comes into operation. That is Business Ability. Capital has done its part. It has provided all the instrumentalities of production; but unless it can command the services of able men to manage the business, all that Capital has done crumbles into ruin.

"Then comes the third partner, last in order of time, but not least, Labor. If it fails to perform its part, nothing can be accomplished. Capital and Business Ability, without it brought into play, are dead. The wheels cannot revolve unless the hand of Labor starts them.

"Now, volumes can be written as to which one of the three partners is first, second or third in importance, and the subject will remain just as it was before. Political economists, speculative philosophers and preachers have been giving their views on the subject for hundreds of years, but the answer has not yet been found, nor can it ever be, because each of the three is all-important, and every one is equally essential to the other two. There is no first, second or last. There is no precedence! They are equal members of the great triple alliance which moves the industrial world. As a matter of history Labor existed before Capital or Business Ability, for when 'Adam digged and Eve span' Adam had no capital, and if one may judge from the sequal neither of the two was inordinately blessed with business ability, but this was before the reign of Industrialism.

"In our day, Capital, Business Ability, Manual Labor are the legs of a three-legged stool. While the three legs stand sound and firm, the stool stands; but let any one of the three weaken and break, let it be pulled out or struck out, down goes the stool to the ground. And the stool is of no use until the third leg is restored.

"Now, the capitalist is wrong who thinks that Capital is more important, than either of the other two legs. Their support is essential to him. Without them, or with only one of them, he topples over.

"Business Ability is wrong when it thinks that the leg which it represents is the most important. Without the legs of Capital and Labor it is useless.

"And last, let it not be forgotten, that Labor also is wrong, wildly wrong, when it assumes that it is of more importance than either of the other two legs. That idea has been in the past the source of many sad mistakes.

"The three are equal partners of a grand whole. Combined they work wonders; separate, neither is of much account. Thus far, notwithstanding the differences that from time to time have unfortunately rent them apart, they have made the closing century more beneficent than all that have preceded it. Humanity, the world over, is better than it has ever been, materially and morally, and I have the faith that it is destined to reach still higher and loftier planes than even the most sanguine have imagined.

"Capital, Business Ability and Labor must be united. He is an enemy to all who seeks to sow seeds of disunion among them."

The relationship existing between employer and employee has radically changed in the past twenty years. The change has been for the betterment of the employee and has resulted in the broadening and humanizing of the employer. He no longer looks upon the employees in his enterprise as machines, but as human beings, that for a time are under his special care. In a nut shell he cannot ask, "Am I my brother's keeper" without receiving an affirmative answer. These changes consist of better working conditions, higher wages, shorter hours, more comfortable homes, better schools and a general uplift in morality and citizenship. Employers did not start these reforms because they desired to be known as philanthropists, but because they had learned that it was a wise business policy to improve the personnel of their employees. Overworked, underpaid, poorly housed, badly nourished employees are not an economical industrial asset, is the verdict of business today. It has been said by employers in the past that there was great danger that the masses of the people might become educated to be content in their useful and necessary occupation. Present conditions contradict this unqualifiedly.

Ignorant, and by this is meant unlearned, unlettered people, present the hardest problems the employer has to solve; the more intelligent the employed, the better. It is not intelligence that produces trouble. Ignorance is always present and usually at the fore when trouble comes. In the school of hard knocks, employers have learned their lessons and have come to a full realization of the need of intelligent, efficient and reliable employees. This is proven by the methods now being used and the efforts put forth in all lines of industrial enterprises to improve the condition of employees; in addition to day schools, there are night classes for the workers. Welfare work of every description, Y. M. C. A. buildings, trained nurses to instruct in healthful methods in the homes, physicians retained to look after the health and sanitation of industrial communities, in fact in all lines of uplift employers are vying with each other.

This being true, the relation of employer to employee today is: To help in every way, by every means at his command; to better the conditions of the employed; to provide better working conditions, good homes with sanitary surroundings, good schools, and to insist upon sobriety, morality and right living by his employees, because only by full and generous cooperation between employer and employee can industrial successes be attained.

The mills of Japan have been greatly favored by a supply of extremely cheap labor and by freedom from law prohibiting long working hours. They have also been enabled to keep down the cost of raw material by varying the mixings and thus setting off one cotton against another in a way that is not permissible in countries making the higher classes of goods that require a single grade of cotton.

Never leave oily waste or rags where they might ignite or cause fire.

Mill Conditions and Market Reviews.

SOUTHERN MILL SITUATION.

It is coming! The interval may be long, and perhaps, the longer the interval, the graver will conditions here become, but when the butchery in Europe shall have ceased, we will undoubtedly enter upon an era of prosperity greater than we have ever known before. The textile industries which were somewhat deranged by the war and the fall in cotton prices, even now are showing greater steadiness and activity. There is every reason to believe that the rebound has fairly begun. While there is no question but that the revival of business will come, and that we shall see an era of prosperity that probably has never been equaled, the time that it will strike us depends largely upon when the ships carrying merchandise abroad and back to us can resume their voyages with safety. Great as we are, with resources unlimited, our commercial life is so interwoven with the rest of the world that we cannot get along without them. To a great extent the results from the cotton crop must be held in abeyance until the markets of Europe resume their activities. In these trying times, and they are taxing the resources, physical, mental and financial, to the utmost, much can be accomplished toward preventing disaster and successfully adjusting our commercial affairs to the new situation, by intelligent, unselfish cooperation on the part of our manufacturers. At present there are five conditions—the opening of the federal reserve banks, easier money, the opening of the cotton exchanges, improvement in our export trade, and a good harvest, which are the most encouraging features in the American business situation today, and to this must be added the fact that the election is over, so that the country is assured of rest from legislative agitation for some time to come. Undoubtedly, the worst shock of the war has been safely passed; the United States has less to lose and more to gain than any other nation, and in due time our former prosperity will return, enhanced manifoldly by present adversity.

Reviewing the general business situation, the Dry Goods Economist says, in part: "This country is on the eve of a period of great prosperity. This statement has been made many times of late, and by various high authorities in our financial, manufacturing and mercantile circles. To the average observer, no doubt, these statements have seemed a little too optimistic. This week, however, a turn for the better is distinctly apparent, and in more than one direction.

"In the first place, the way to increased exports has been opened. Not only are English manufacturers showing a greater willingness to purchase such raw material, but the British Government has announced that it will not molest neutral ships carrying cotton, even when the cargo is destined for a country with which Great Britain is at war.

"That there will now be a demand for our cotton, both from Germany and from Austria, is indicated by a cable received at Washington this week from our Ambassador at Berlin, according to which Germany will need at least 50,000 bales of cotton a month, and Austria 25,000. This is considerably less than the normal quantity taken by these countries, but it is large enough to be of material assistance in removing the cotton blockade.

"In addition, there is now every prospect of success in connection with the plan for establishing a fund largely in excess of $100,000,000, through which the banks of the country will be enabled to loan money, with cotton as security."

In talking with T. H. RENNIE, President of the Pell City (Alabama) Cotton Mills, at the recent meeting of the Southern Textile Association in Birmingham, he said:

"The business outlook at the present time is what one would call a sort of waiting condition. I think manufacturers as a class are optimistic; I think they expect within the next few months to have good business, and to have ready sales. The general business condition of the country is better than it was; if we stop to consider the effect of the shock of the war, and the stopping of international exchange of all kinds, and the ships taken off the sea, the moratorium declared in England, and without our usual export of cotton to keep the balance of trade right between us and Europe, it meant that we had to slow up a bit until we could really decide what was best to do. The question of exchange, practically settled, cotton being allowed to go to all ports without molestation, means an enlargement of the cotton business for this country, it also means that the balance of trade will soon be in our favor, and this must result in better business in all lines.

"The business so far that has come to American cotton manufacturers as a consequence of the war has been spotty—in other words, it has been for special lines, and this has not meant a general increase in the cotton manufacturing business.

"There is another condition that has been hard for the American manufacturer, and that is, the cotton exchanges being closed. He could not safely sell goods ahead, because he had no way to hedge the sales, and with money at 8 per cent he could not see his way clear to invest largely in spot cotton. Today, however, with the cotton exchanges soon to open, the manufacturer is able to do business in the usual way, money is easy, and I can see nothing to prevent a resumption of business all along the line for the Cotton Mills.

"There is one thing that has been overlooked by a great many people in discussing the cotton situation, and that is the stocks of cotton which were accumulating all over the world, with the American crop nearer seventeen than sixteen million bales, if trade had been normal the price of cotton would have been very much lower this year than it was last year."

The following new mills are proposed, also additions and improvements to old mills as noted:

J. A. Couch, President of the Arkansas Power Co., at Arkadelphia, Ark., is interested in establishing a cotton mill, and has offered certain inducements for the organization of a company.

The Terrell Commercial Club, at Terrell, Texas, is endeavoring to promote a cotton mill at that place. It is proposed to organize a company when 2,000 bales of cotton have been subscribed, this cotton to be paid for in stock of the company, and this amount is to be supplemented by $150,000 in cash.

H. A. Wroe and R. G. Crosby are planning to organize a company to build a cotton mill at Austin, Texas, to be capitalized at $500,000. Cotton is to be taken in exchange for stock.

G. H. Tilton & Sons, of Savannah, Ga., are considering an enlargement to their plant, operating on cotton hosiery. This is a branch of Tilton, N. H., and has an equipment of 360 knitting machines.

W. H. Garretson, 1212 Washington St., Beaumont, Texas, is organizing a company to put up a hosiery mill at that place. The plans call for a plant with capacity of 20,000 pairs of hosiery daily.

Additional machinery, including 32 new looms and 1,024 spinning spindles have been ordered by the Pickett Cotton Mills, High Point, N. C. They are planning a 30,000 spindle addition to this mill, though nothing is to be done regarding this in the near future.

The Texas City Cotton Mfg. Co., at Texas City, Texas, has been incorporated with capital stock of $500,000 by E. A. Bynum, A. D. Slack and J. M. Head. An office has been opened in Houston, at 302 Scanlon Building. A large cotton mill is planned.

A. M. Walker, Box 325, San Antonio, Texas, is planning to build a hosiery mill at Beaumont, Texas.

Alterations are being made at the plant of the Kentucky Cotton Yarn Co., Louisville, Ky., to adapt them to the manufacture of specialties in coarse cotton yarns, 6's and lower. They expect to begin operations in January, with 2,000 spindles with accompanying preparatory equipment. A specialty will be made of all kinds of mop yarns. This company was organized by Ira F. Phillips, formerly superintendent of the Louisville Cotton Mills.

Walter A. Friedman and Samuel A. Devay, of Cleveland, Ohio, both formerly connected with the Cleveland Knitting Co., have incorporated a new concern under the name of Friedman-Devay Knitting Co. A line of fancy knit goods, including sweaters, jerseys, and infants' wear will be manufactured.

New cards are to be installed in the plant of the Juliette Milling Co., at Glovers, Georgia.

New roving frames have been ordered by the Richmond Spinning Co., of Chattanooga, Tenn., manufacturers of carded and combed hosiery yarns. These are to replace old frames which will be taken out.

The Manchester Mfg. Co., at Macon, Ga., has placed an order for new drawing frames, to replace old equipment.

Engineers have been engaged by the French Broad Mfg. Co., Asheville, N. C., to prepare plans for their proposed new spinning mill. They contemplate the building of a $150,000 spinning mill, and the doubling of their weaving department. Quilts of various kinds are manufactured here.

At Titusville, Florida, plans are projected by the Palmetto Products Co., for the building of a plant to weave rugs from palmetto leaves.

At Lookout, Kentucky, John D. Coleman is reported as being interested in establishing a knitting mill at that point.

The Muscogee Mfg. Co., Columbus, Ga., have placed their order for new drawing frames.

Two new spinning frames have been ordered by the Acworth Cotton Mfg. Co., Acworth, Ga.

Cleveland Mill & Power Co., Lawndale, N. C., have placed order for three additional cards.

The Sutherland Mfg. Co., Augusta, Ga., are planning for the installation of new roving frames.

Contract has been placed for three new cards by the American Spinning Co., at Greenville, S. C.

The Taylorville Cotton Mill Co., at Taylorsville, N. C., are planning to add new cards and drawing frames.

The Proximity Mfg. Co., Greensboro, N. C., have placed their order for new waste equipment.

Chas. Colcord and S. A. Horton, of Oklahoma City, Okla., are promoting a plan for the organization of a company to build a cotton mill. They propose a capitalization of $500,000, and say they will accept cotton in payment for stock.

W. J. Cottingham, of Memphis, Tenn., is contemplating the establishment of several cotton mills in the cotton growing states. No definite plans have been made.

The Clinchfield Mfg. Co., at Marion, N. C., is making rapid progress with the construction of its mill, which when completed will include 26,000 spindles and 600 looms.

The addition to the plant of the Marble City Mill at Sylacauga, Ala., has been completed, new winders, spinning frames, and a humidifying system having been installed. The entire mill has been thoroughly overhauled, and put in first class condition for the manufacture of 10's to 14's double roving hosiery yarns. They formerly manufactured 8's to 12's.

J. S. Walker & Co., of Louisville, Ky., who in the past have manufactured burlap bags, are now equipping their plant to manufacture cotton bagging. This is the result of the movement to increase the consumption of cotton products.

The Hillside Cotton Mills is the name chosen for the new mill to be built by Fuller E. Callaway and his associates at LaGrange, Ga. The mill is to be capitalized at $500,000, and is to manufacture cotton specialties for foreign trade, which heretofore have been supplied by the European mills, which have now been forced to cease operations on account of the war.

John B. Carrington, Secretary of the Chamber of Commerce at San Antonio, Texas, is endeavoring to organize a company to build a cotton mill at that place. The enterprise is planned as a $250,000 investment, and it is proposed to interest English capitalists.

The Grantville Hosiery Mill of Grantville, Ga., of which W. N. Banks is president, has completed the new addition to its mill building, increasing its floor space to double its former area, and is installing additional machinery, which will increase its capacity to upwards of 10,000 spindles. Over 2,000 twister spindles will also be added together with all necessary preparatory machinery.

The mill will be operated throughout with electric power, contract having been awarded The Columbus Power Company, of Columbus, Ga., who will supply service from its recently finished 40,000 horsepower hydro-electric development at Goat Rock, on the Chattahoochee River.

The arrangements of the electric drive permits great flexibility; four frame motors will be used for intermediates and fly frames, as well as for the spinning and twisters; and small group drives are arranged to take care of the preparatory machinery and cards. The dye plant will also be operated by electric power. The Park A. Dallis Company, mill architects and engineers, of Atlanta, Ga., furnished the plans and specifications.

Before throwing in power always look the machine over carefully and be certain every part is in working order.

NEW ENGLAND MILL SITUATION.

The scarcity of dyestuffs is the most serious problem now before the New England cotton manufacturers. The Pacific, American, and Algonquin printing companies are running half time to conserve the limited supplies of colors they have in hand. They are already so short of many colors that they will not undertake to deliver certain goods except subject to delay. The United States Finishing Company and other job printers are also suffering from dye shortage. There have been some importations received here within a short time but the colors most wanted are not to be had. The acute scarcity is on reds, aniline blacks, and many of the indanthrene dyes.

It is a curious fact that while the manufacturers are very much concerned over the dye shortage, the buyers of the country generally regard that situation as of little importance. The explanation of this is found in the conflicting statements that have been published by various chemical companies or their agents. Naturally, none of the foreign dye manufacturers want to see a domestic dye industry established and they are endeavoring to discourage it in every way. Some agents of these chemical companies have given out interviews that are distinctly misleading. In some instances, where companies have cancelled their contracts with mills, their representatives have been urging in print that the dyestuff shortage is being greatly exaggerated. Under this condition it can be seen that buyers of goods will continue to regard a scarcity of dyes as no menace at all.

One other phase of the matter is that the demand for goods has been light, and buyers have been importuned to take on various lots of colored goods that are held in stock, either because of cancellations or because mills have gone on making goods in anticipation of a demand which has not yet materialized.

Many mills making colored fabrics have already ceased production on various qualities. The lines have been allowed to run out and buyers have been told that deliveries in future will depend entirely upon developments in the countries at war. Certain shirting fabrics that were made in particular shades will no longer be offered in those shades. The substitutes that are being prepared will naturally provoke comment among buyers. Until the stocks of goods now in hand have passed beyond the cutters, mills will hesitate to deliver the new shades. The difference can be readily detected when cloths of the new colors are placed side by side with the old ones, and they would readily cause confusion if cuffs or other parts of shirts were made of the different materials.

Ultimately, the buyers of the country will come to believe all that the manufacturers now know about the real shortage in dyes, and when they do it remains to be seen what effect it will have upon them. For the present, the chief market effect of the dye shortage is seen in the slow revision of prices on fabrics where colors are used. Some of the large New England mills have steadfastly refused to make new low prices on prints, ginghams, or yarn dyed fancies. They say they are being forced to pay extraordinary prices for the limited dyestuffs they secure and even if they named lower prices on their goods they would be unable to give buyers satisfactory assurances of deliveries on their purchases.

In the meantime, many other manufacturers of colored goods are making prices that will sell the stocks in hand. A traders' market exists by which individuals are handled as their orders demand, and prices have become very irregular. On staple tickings, denims, and some lines of cheviots prices are varying as much as 1½ cents a yard, yet no open prices are quoted.

In the early part of the month the print cloth markets were quite firm and active but toward the close of the month values fell off again and are very close to the low point once more. Printers are running very light and converters are buying sparingly. Some contracts have been accepted for cloths to be delivered next year but as a rule New England mills have accepted much less forward business than southern mills. Prints have remained unchanged in price, and staple ginghams are unchanged.

During the month the flannellettes made for the cutting trades in 36 inch widths were sold up for the coming season by three or four of the large mills. Prices named were kept quiet and showed a reduction varying from 1¼ to 1¾ cents a yard below those of a year ago. The low price attracted some of the large cutters who make night gowns, etc., and they placed some huge orders with a few leading mills. But this business was accepted at a very close margin and unless cotton goes below the 7 cent level it will be difficult for the mills to show a profit on production. In most instances the orders were taken with a view that they would give occupation for a large part of the working force during the dull months of the winter.

The jobbers have remained out of the markets and on napped goods for fall, 1915 delivery, it is the present purpose of mills supplying the jobbing trade to hold off until as late a date as possible next year before naming prices. Their hands may be forced by southern mills making these goods, especially in the case of those concerns that did not secure their usual share of the wide flannellette business. The blanket situation has not changed much, the leading mills selling about what they are making and delivering on past orders.

The trade in fine and fancy cottons has been disappointing. The converters and jobbers all admit that they secured a very full representation of their lines in the initial trading, but the retailers and cutters have not been sending in satisfactory repeat orders, so that the mills are now looking for future business. This has led to price concessions on many fine gray lines for future delivery and also some easing in the spot prices on lawns, etc. New Bedford mills are reported as operating about 80 per cent of their looms and Fall River rather a less proportion. Unless there is a decided improvement in the volume of orders in the next few weeks there must come further curtailment.

There has been a very fair business done on low count bleached cottons. Prices in those lines were revised drastically, and in keeping with the drop in the values of gray goods. But the leading branded lines of jobbers' bleached cottons are held quite steady. In the case of 4-4 Fruit of the Loom, quoted at 9¼ cents, no change has been made in over 15 months. To some extent this stability has been due to the wishes of jobbers to have primary market values maintained until stocks in the hands of distributors were liquidated.

The reports of earnings in New England mills as made to the various stockholder meetings all showed the effect of the drastic cut in the values of cotton and stock in process made necessary by the decline in the staple. It has been no uncommon thing to note reductions of $50,000 in the

stock on hand of various small mills, due wholly to the severe drop in the price of cotton compared with a year ago. These kinds of losses must ultimately be reflected in the bookkeeping of merchants, and this condition naturally tends to make everyone cautious as the year end draws nigh.

The machinery manufacturers are not active. In fact several of them are running shorthanded under reduced working hours. Prices are very low indeed. The most hopeful thing noted by some of the cotton machinery men is a quiet inquiry that is being made from several sources looking to the placing of small orders for spinning, carding, and opening machinery to replace present equipment. Undoubtedly these inquiries are being stimulated by the low prices machinery concerns will accept for the purpose of keeping their working organizations intact.

In some places the mills have benefitted by the war in the sense that orders for war supplies have been received. Hospital supplies, such as sheets, bandage cloths, and absorbent cotton have been sold liberally. There have been some good orders taken for duck. Some of the underwear and hosiery mills have taken foreign business due to the war. But these orders do not make up for the sharp loss in domestic trade due to the general hesitation which has prevailed.

It might be supposed that New England as a whole would be feeling pretty blue as a consequence of the hard conditions through which the mills have passed. As a matter of fact there is an undercurrent of optimism among manufacturers, bankers and machinery men, based upon the belief that within a few months trade will improve steadily, and will finally become quite active, particularly at the export end. It has always proved true in the past that when cotton could be secured at or around 8 cents per pound, the mills have been able to get a better paying value for their products than when the staple runs above 11 cents. For several months at least, low priced cotton seems probable, so that manufacturers are relying upon past experience to be repeated.

COTTON COMMENT.

BY H. AND B. BEER, NEW ORLEANS.

New Orleans, November 25th, 1914.

Owing to the tenacity with which the southern farmer is holding on to his cotton in the face of the European war, prices have advanced about one cent during the past month, and if the South shows the same determination to continue to hold back its cotton, with the view of bringing about higher price levels, a further rise in values is not at all unlikely in the near future.

There is a better demand for cotton than is generally imagined, for while exports to Europe since August 1st are very much smaller than they were during the corresponding period of last year — only 1,188,000 bales vs 2,802,000—shipments of late have picked up materially, thus for this week 176,000 bales against 242,000 one year ago.

We understand that 66 steamers have been booked to load grain and cotton at Galveston during December and January for export to Europe, and business is improving at all of the American ports. This year's crop, aside of selling below the price of production, is very good in quality, and if the tonnage was available, exports to Europe would be of larger proportions.

Because of the fact that 11,624,708 bales of cotton were ginned to November 14th, this year, compared with 11,313,236 bales to the corresponding date in 1911, the previous 16,000,000 bale crop year, the general impression is that this year's crop will be 16,000,000 bales, if not larger. However, the size of the crop is a secondary consideration owing to the very low price at which the staple is selling, with every assurance that there will be a big reduction in the acreage next spring.

The South is planting a big increase in winter grain, especially in the southwest where the increase in the acreage of wheat and oats is very large, particularly in Texas and Oklahoma, and not a little of this planting is going on in the Mississippi Valley states also. Next spring it is probable that more corn will be planted in the South than ever before, all of which points to a material decrease in the cotton acreage next year.

THE KNIT GOODS MARKET.

The knit goods market for the past month has indicated a variety of conditions. Some manufacturers are busy to the extent of running night and day, while other manufacturers are complaining most bitterly of the slack business. Early in the month it was remarked that heavy underwear for nearby deliveries was lower. The position of spring underwear was somewhat toned up after the revisions on the 25 cent balbriggans made by four mills. The remaining mills stood firmly against changes and it is said this will be their continued policy. Hosiery continued spotty during this period, some parts of the country having normal trade for next spring and others had not. The attitude the mills have taken under these circumstances generally indicate a disposition to recognize the real causes and adjust themselves accordingly. On the subject of dyestuffs there had been no appreciable improvement over the situation at this time in the month, but it seemed to be difficult to make the buyers understand the real truth of the results of this dyestuff question. Under such conditions there was no great enthusiasm shown in the selling going on for next Fall.

Later in the month it became evident that agents would fail to maintain the spring underwear prices and the reductions in these had a tendency to unsettle the whole market. There seems to be a steady export demand for fleeced underwear and orders of considerable size have been received. The understanding is that these orders for fleeces are not for war use. However, selling agents surmise that if sufficient wool underwear cannot be secured for the armies, fleeced underwear will have to be used. Generally speaking, however, underwear manufacturers need business. There was some improvement in the hosiery section at this time and some few manufacturers reported having sold their production for six months to come.

Cancellations and efforts by jobbers to secure lower prices from knit underwear mills on account of the changes in the cotton market since the war began were the subjects taken up by the Pennsylvania Association of Underwear manufacturers at their recent meeting at Redding, Pa. Their resolution on this question, adopted without a dissenting vote, read as follows

"Whereas, certain circular letters have been circulated by different jobbers asking for reductions which in nowise would benefit the consumer, it is

"Resolved, that the association will not reduce prices on orders placed or accept cancellations."

Classifications of goods which have been made up under contract, it was said, are still in the mills and many manufacturers threatened with cancellations unless a substantial rebate be allowed. However, President Charles E. Leippe expressed the opinion that there is some general improvement in business in which he says the result of the recent election is an important factor in having to a considerable extent reestablished confidence in the future. This renewal of confidence has also caused an easing in the money market and these lower rates, it was thought by Mr. Lieppe, were a contributing factor in the evidence of more disposition towards cheerfulness among buyers. His advice to the knitting men was to sit quietly on the lid, accepting no cancellations, and insisting on the fulfillment of contracts as to prices and concede to yarn houses the same rights they would have the jobbers observe.

As the month closes the improvement in the hosiery situation seems to have undergone something like a reaction and the situation is if anything worse than a month ago in some sections. Many orders reported by wire from jobbers for immediate shipment for heavy underwear recently received seems to indicate that colder weather is to make considerable improvement in the underwear trade. Export orders for fleeced underwear and sweater coats still continue to come in and from general indications this seems to be to a large extent a regular trade order from countries that prior to this time had been receiving the bulk of these lines from continental firms in Germany. After the holidays much better business conditions are anticipated by a large number of manufacturers.

THE YARN MARKET.

The yarn market for the past month has been dull and spotty, particularly is this true of the Philadelphia market. There has been considerable optimism expressed during certain periods as to the outlook, while at other times, dealers seemed to be of the opinion that yarn prices were too high. On the other hand there was some cutting of prices at different times which brought on medium sized sales because of the special cuts. The closing of October found some stiffening in the prices of weaving yarns from southern mills.

The first week of November developed a good many inquiries about yarns for future deliveries and there were some sales of from 50,000 to 75,000 pounds of knitting yarns where the prices had been reduced sufficiently to make the offer an especially attractive one. Deliveries with some dealers were fair while others received many requests to defer such deliveries. Collections remain consistently poor. The weaving lines continued to improve in spots and southern spinners generally advanced their quotations from a cent to a cent and a half on staple numbers during that period. This was no doubt because of the general increase in spot cotton quotations all over the South.

The middle of the month found a considerable number of sales being made of from 10,000 to 25,000 pounds while some large sales had been put through. The most of the large sales made, however, were not for immediate use, but because the yarn prices looked good to the buyer who believed that the future would bring yarn prices much higher. During this period of the month weaving yarns were not quite as brisk and in spots declined a little. Southern spinners still continued to hold prices higher while eastern spinners seemed to be taking anything that showed a profit.

As the month closes there are no reports of any large quantities being sold and most dealers reported things as being rather slow. Some seemed to think that the time for improvement was showing up but the opening of the cotton exchanges has not, at the time of writing, shown any specific result in the yarn market. It has, however, undoubtedly generally increased the confidence of the spinners and has placed them where they can better afford to take orders for future deliveries. The following are recent quotations in the Philadelphia market:

Southern Single Skeins.

4s to 8s	13 @13½	20s	15½
10s	13½	24s	16½
12s	14	26s	17
14s	14	30s	18
16s	14½		

Southern Two-Ply Skeins.

8s	13½	24s	17
10s	13½ @14	26s	17½
12s	14	30s	18 @18½
14s	14 @14½	40s	22½ @24
16s	14½	50s	28 @29
20s	15½ @16	60s	35 @36

Carpet and Upholstery Yarns in Skeins.

9-4 slack	15½	8-3-4 hard twist	13 @13½
8-4 slack	15		

Southern Single Warps.

8	13 @13½	24s	17
10s	13½	26s	17½
12s	14	30s	18 @18½
14s	14½	40s	23 @25
16s	15 @15½	50s	28 @28½
20s	16		

Southern Two-Ply Warps.

8s	13½ @14	24s	17 @17½
10s	14	26s	17½
12s	14 @14½	30s	18½
14s	15 @15½	40s	23½ 25
16s	15½ @16	50s	28½
20s	16½		

Northern Two-Ply Carded Peeler Skeins.

22s	17	36s	21 @21½
24s	17½	40s	24
26s	18	50s	28 @29
30s	18½ @19	60s	35 @35½

Two-Ply Combed Peeler Skeins.

20s	24½	50s	37
24s	25 @25½	60s	42 @44
30s	28 @28½	70s	50 @52
40s	32 @32½	80s	60 @63

Southern Frame Spun Yarn on Cones.

8s	13½ @14	20s	16½ @17
10s	14½ @15½	22s	17 @17½
12s	15 @16	24s	17½
14s	15½ @16	26s	18
16s	15½ @16	30s	19
18s	16½ @17		

Northern Mule Spun Carded Yarn on Cones.

4s to 8s	15½	20s	18 @18½
10s	16 @16½	22s	18½ @19
12s	16½ @17	24s	19 @19½
14s	17 @17½	26s	19½ @20
16s	17½	30s	20½
18s	18	40s	24

Northern Mule Spun Comber Peeler Yarn on Cones.

10s	21	16s	22 @22½
12s	21 @21½	18s	22½ @23
14s	21½ @22	20s	23½ @24

Northern Mule Spun Combed Peeler Yarn on Cones.

22s	24 @24½	30s	27½ @28
24s	25 @25½	36s	31 @32
26s	26 @26½	40s	35 @36

An American consul in a South American country reports that there should be a good market for American cotton yarn in his district, owing to the decreasing supplies available in Europe. The consul believes that the better way to secure this trade would be for American manufacturers in this line to send a competent representative to look over the market. The address of a number of local factories were given in the report, which may be obtained by applying to the Bureau of Foreign and Domestic Commerce and referring to file No. 13697.

COTTON MANUFACTURING.

THE CARDING PROCESS.

BY H. C. WOOD.

PART ONE

The carding process is the second distinct process through which the cotton passes in its progress toward the finished product. During this process the stock is subjected to a more thorough cleaning than is attempted in the picker, brought about by the action of the card which will be spoken of later. An attempt is first made, during the carding process, to straighten and parallel the fibres. This is only partially accomplished however as the fibre is practically in a loose state and, owing to its nature, will have a tendency to curl around adjacent fibres. This natural tendency of the fibres themselves is aggravated by the action of the doffer comb in striking down upon the web coming from the doffer. That the straightening and paralleling of the fibres is somewhat accomplished is readily seen if one will take the trouble to split the sliver. It will be seen that the sliver will split clearly from end to end. If the fibes did not have a tendency to lay straight and parallel this could not be done. Another object sought for is the removal of trash and neps together with a small percentage of short fibres. This constitutes the waste made during carding which will be spoken of in more detail later. It is during this process also that the stock is first formed into a continuous strand known as sliver.

Having considered the objects of the carding process it is now in order that we consider the means of accomplishing these objects.

ACTION ON THE STOCK

The lap produced on the finisher picker if carefully examined is found to be made up of small tufts of cotton firmly pressed together to form a sheet or lap. Some of these tufts will often be quite large showing dark and heavy in the lap while others are small and light. This is, then, the form in which the picker treats the stock. The action of the beater is such that no more can be expected. No attempt is made to straighten or parallel the fibres, but simply to clean the stock as much as possible with the idea of removing the heavier and looser dirt and trash. The fine dirt and neps, however, are too firmly held by the fibre to be removed and pass on in the lap.

In the manufacture of carded yarn the card is the last point where the stock may be cleaned. Beyond this point the process is of an evening, straightening, paralleling and reducing nature, with no opportunity to clean the stock other than what impurities drop out of their own accord during succeeding operations. With this point in mind one can understand the importance of the card and the work it must do.

By far the most important work performed is the cleaning action. Not only are motes, trash and neps removed but short fibres as well. The action of the card splits up the small tufts making up the lap into individual fibres as nearly as possible, the theoretical idea being to treat each individual fibre separately. This is accomplished by a very low rate of feed, a high surface speed of the cleaning and carding parts and a large carding surface. This large carding surface, together with the slow feed, makes it possible for the card to work very efficiently provided it is properly adjusted and conditions are favorable.

During this cleaning action two kinds of waste are made which are usually called "fly" and "strips." Fly is removed by screens suitably placed under the licker and cylinder. This waste is deposited within the card itself and removed from the back of the card. Fly is composed of the very short fibers which are no more than lint together with seeds, sand and leaf dirt. It is of a dark grayish color and is of very little value.

"Strips" are removed by the revolving flats and are either wound upon a roll or deposited upon the doffer bonnet in a loose condition. The strips are made up mostly of short fibres and a small percentage of longer fibres which is undesirable but unavoidable. Together with the fibre, the strips contain much trash that is not removed by the screens. Strips form one of the high grade wastes that are removed during manufacturing and readily command a high price, sometimes nearly equal to the lower grades of raw material.

Before going farther it would be well to speak of the importance of a well formed and even lap. The card is operated with the longest draft of any machine used in a cotton mill and as no doublings are obtained the unevenness of the picker laps are reproduced in the card sliver and mutliplied to the extent of the draft. For instance, if the card has a draft of 100, a light place in the lap only one inch in length will produce 100 inches of light sliver.

In order that numbers may come even in the spinning room every finished lap should be weighed. Those laps varying more than an allowable amount each side of the standard, say one pound, should be turned back. Care must be taken to adjust the picker properly and have sufficient air current to make an even, well formed lap, free from thick bunches. Such bunches coming under the feed roll cause it to be lifted to such an extent as to allow the licker to suck in great pieces of the lap causing a jam and even breaking parts of the card.

THE CARD

The machine used in carrying out this process is known as the Revolving Flat Card. It is so called from the fact that the flats are in the form of an endless chain revolving over the upper surface of the cylinder. It is also called the English card due to the fact that the English spinners were the original users of this type of machine and brought it to its present state of development. It is also called the English card in distinction to the American type or the stationary top flat card. The American type is fast passing out of existence and is of historical interest only. Machine builders discarded the American type some time ago.

Different makes of revolving flat cards are on the market but all are constructed on the same principles. All contain the same necessary parts to perform the work. They differ only in structural details and attachments

patented and controlled by the several machine builders.

In describing the card, its various parts and the work they do, no special make of machine will be considered. Later in the article a few special attachments will be named and explained as they will doubtless be of interest to many readers of COTTON.

Fig. 1 shows a sectional elevation of a revolving flat card. A general description of the progress of the stock will first be given and then a thorough discussion of the more vital points.

The lap A is carried on the lap roll B and fed by the fluted feed roll C and feed plate D to the licker-in E. The licker-in is sometimes called the taker-in or leader. It is a cylinder about 9 inches in diameter, covered with a saw toothed metallic clothing spirally wound, and has a surface speed of about 1,050 feet per minute. The lap is fed to the licker-in by the slow turning of the feed roll C, pressure being applied to the feed roll of such an amount as which ranges from 160 to 170 revolutions per minute. The function of the cylinder is to remove the fibers from the licker-in, draw them through the flats J and deposit them upon the doffer L. This is accomplished by the greater surface speed of the cylinder and the angle of inclination of the wire clothing. The fibres are firmly held by the cylinders and in carrying them through the flats, they are still further carded, straightened and paralleled. The flats consist of a chain of strips of iron, rigidly constructed, 106 to 110 in number, and covered with fillet in the form of narrow strips.

The direction of revolution and the "keen" of the wire are such on the cylinders and flats as to cause the fibre to be more firmly held by each as acted upon by the other. This action causes short fibres and motes to be deposited on the flats which are later cleaned from the flats by a comb. This waste is known as strips and in many cases is reworked with good cotton in the form

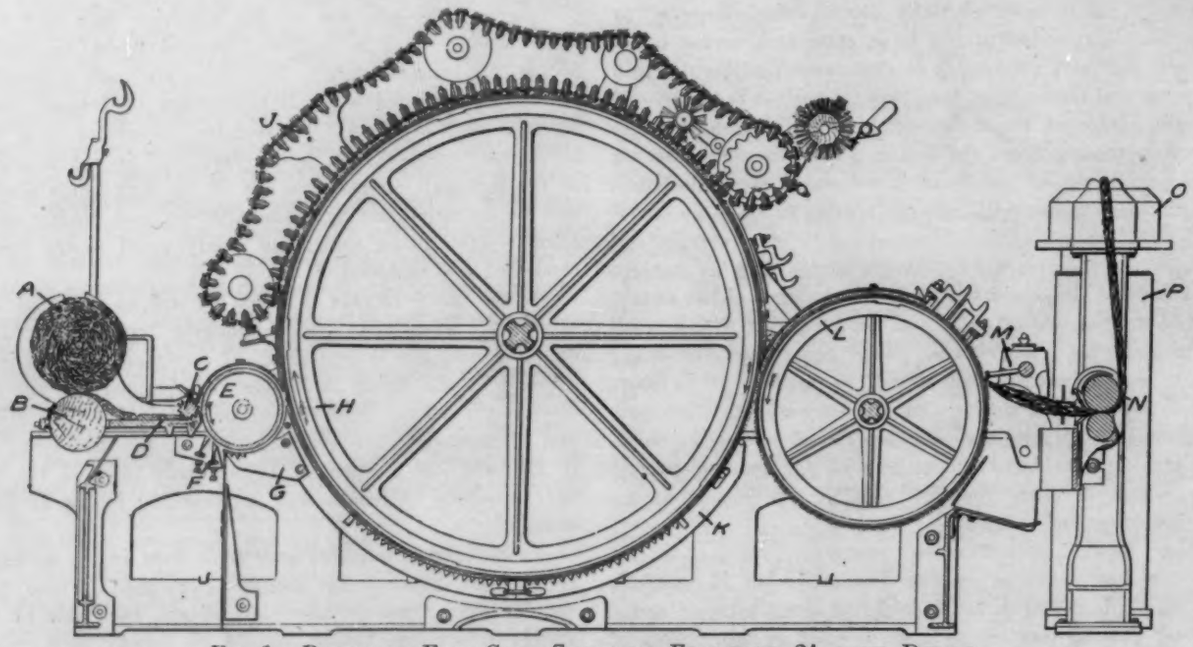


FIG. 1. REVOLVING FLAT CARD, SECTIONAL ELEVATION, 24 INCH DOFFER.

to firmly hold the lap and feed it regularly and evenly.

It is here that the first carding action takes place and here the lap is first split up into as nearly individual fibres as possible. The lap is fed to the leader at a speed of from 2½ to 7 inches per minute depending upon conditions. This slow rate of feed allows the licker teeth to pass through the end of the lap a great many times before the fibre is really removed, thus combing out the fibres and straightening and paralleling them.

As the leader removes the fibres from the lap it carries them over a pair of knives called mote knives and lettered F. Their purpose is to cause the fibres that are drawn over them to drop any motes which may have been carried along with the fibres from the lap. Covering the under surface of the licker is a screen which serves the purpose of preventing the fibres from being cast off from the leader. It also performs a slight cleaning action upon the fibres causing them to drop dust and lint.

The cylinder H is a large drum 50 inches in diameter covered with card clothing and has a surface speed of about 2,200 feet per minute depending upon the speed of waste mixtures.

Covering the under surface of the cylinder is the cylinder screen usually made in two sections. This screen is made up of a series of grids or bars, extending across the card. The fibres carried over this screen by the cylinder are given a scraping or thrashing action, causing them to drop short fibres. It also prevents any tendency of the cylinder to cast fibres off at this point.

The doffer L is a smaller drum 24, 26 or 27 inches in diameter on the iron and revolves at from 5 to 18 revolutions per minute. It receives the fibers from the cylinder and carries them forward until they are removed by the doffer comb M in the form of a web. This web is then drawn through a trumpet and condensed by the card calender roll N and then carried through the coiler O and deposited in the can P as card sliver.

The draft of a cotton card may range anywhere between 75 and 150. A draft of 200 is sometimes used in some of the fine spinning mills of England. The usual way and one that will give the best results is to use short drafts, say from 75 to 100 on the short stapled American

cottons. On Egyptian a draft of 100 to 120 may be used and on Sea Island from 120 to 150.

Laps weigh from 7 to 20 ounces per yard depending upon the stock being run, the grain sliver desired, and the draft used.

The percentage of waste removed is a factor that varies widely in different mills and under different conditions. It will vary from 3 to 18 per cent. The writer has worked in a mill where orders were given that no fibres must be found in the fly. All fiber had either to come out in strips or go into the can. Only 4.5 per cent waste was taken out of this stock which graded "Good Middling." The writer has also run stock grading "Good Ordinary" and taken out 18 per cent of waste total. The same card with the same settings on "Strict Good Middling" only took out 6 per cent total. There is a small percentage of waste that is invisible or unrecoverable when running all stock, but on the lower grades it runs very high. Under the subject of Card Tests more information will be given along this line. In general the "strips" form about 66 per cent of the total waste removed.

(To be continued.)

WEAVING ARTIFICIAL SILK.

BY H. R. CARTER.

Viscose silk should not be used for warp under 130 deniers. For weft 100 deniers up may be used. In Glanzstoff silk 80 deniers may be used for weft.

Broken skeins should only be used for weft, as knots in the warp are to be avoided when possoble. In winding the weft from the hanks, the use of machines in which the conical nose of the pirn or bobbin presses into a cup or against a friction cone, is to be avoided as such friction chafes and cuts the strands. It is also advised to wind the yarn from the hank first on to a bobbin and then to draw the yarn off that bobbin endwise in winding it onto the pirn in a second operation.

In winding the warp from the hank, a drum winder should not be used as all friction on the surface of the yarn is to be avoided. The bobbin upon which the yarn is to be wound is placed on a spring spindle with a boss on one end, which is driven by friction on the edge of one of a series of friction discs upon a driven shaft lying parallel to the bobbins.

If the warp is not wholly of artificial silk, the separate materials must be warped on separate beams. The warp is prepared in the usual way. It is conveniently dressed while running a number warper's beams together on the weaver's beam. A suitable machine for this work resembles the Scotch or linen yarn dressing machine or the slasher, but is without either drying cylinder or fans; the yarns being dried while running in close proximity to a hot plate about 72 inches long. This method of dressing is much to be preferred to sizing in the hank, which is, however, sometimes practiced although it often results in broken filaments which catch in the reed and heddle and cause trouble in the weaving department. The best size to use is a solution of gelatine in warm water.

The length of artificial silk laid upon the beam should exceed by about 2½ per cent the length of the other warp threads with which it is to be woven, as the silk should be woven slack, as it is liable to contract in any wet finishing process such as piece dyeing or bleaching.

The weaving shed should be a dry one, no lumidification of any sort being used, as artificial silk cannot be successfully woven if damp. The weft should also be kept in a dry warm room, for the great secret in weaving artificial silk is to keep it dry.

The shuttles to be used for artificial silk weft should be lined with furry rabbit skin to prevent the slippery yarn from flying off the nose of the pirn or bobbin.

Artificial silk may be used as warp either single or twofold. If single it should have about 6 turns per inch twist put in it or else should be dressed. If the latter, the threads will be straighter and more lustrous.

As regards the thickness of the warp, artificial silk will weave well at the rate of 160 threads per inch of 140 denier viscose warp with 70 picks per inch of 30's cotton weft. On account of its slippery nature artificial silk warps must be well bound with picks to make the cloth firm.

A useful lining from artificial silk warp and cotton weft can be made with 110 ends per inch of 140 denier silk and 60 shots per inch of 2 ply 80's cotton, 3 and 1 twill weave. A washable blouse material may be made with 2 ply 80's cotton warp, 75 threads per inch and 55 shots per inch of artificial silk weft 160 denier, 3 and 1 twill weave.

The chemical composition of artificial silk varies from one lot to another and the difficulties of manufacture are such that it cannot be guaranteed perfect. Its luster and dyeing quality varies. Consequently it is difficult for the dyer to get uniform shades and the use of hank dyed weft of one solid color is to be avoided. For similar reasons bleached and gray weft yarns are better woven in a drop box loom with 2 shuttles, each shuttle putting in two shots alternately. Even so, there is much less damage of striped cloth when the artificial silk is used as warp and not as weft.

In finishing goods with artificial silk sized warps, the cloth must first be passed through malting liquor to dissolve out the dressing on the artificial silk, otherwise the fiber will be dull, hard and not colored well. If the yarn be dyed, the piece must not remain too long immersed lest the color lose its fastness, therefore, malt for one hour only, then wash and dry on the tins. If the artificial silk is used for weft only it is not necessary to malt.

Artificial silk does not lend itself to filling or loading with starch, farina, china clay, etc., which spoils the luster into the bargain. Hot calendering under pressure has the same result. Artificial silk is cut by the engraved roll of the Schreiner calender, which should consequently not be used for fabrics into the composition of which artificial silk enters.

The effect of cold calendering, when artificial silk is used for warp, is to increase its luster. The piece should be passed through face side to the chilled steel bowl and plenty of pressure applied while tension is kept on the cloth. When artificial silk is used for weft, cold calendering flattens it down and spoils its luster. Consequently, the stenter should be used after calendering to put tension on the weft and bring out its luster again, such luster being due to the reflection of light from the straight smooth thread.

"Wetting out" artificial silks in cotton fabrics consists in running the pieces through a trough of cold water and then drying them on tins or drying cans. The fabric shrinks in width by nearly four per cent, which should

be allowed for in weaving it. The process gives a soft handle to cloth made with cotton warp and artificial silk weft, such as used for blouse and washable dress material.

When artificial silk is used for weft, shrinking greatly improves the brightness of the finish. Cloth is sometimes steamed while being stretched. Goods composed in whole or in part of artificial silk should be finally rolled on boards as if folded, creases remain in the cloth.

DESIGNS FOR FANCY COTTON FABRICS.

BY THOMAS WOODHOUSE AND JAMES IRELAND.

PART SEVENTEEN.

A very popular and smart color effect appears in the pattern illustrated in Fig. 72. The pattern is a typical example of one which may be made in different sizes by the proper arrangement of colored threads in conjunction with plain and basket weaves. The particular example shown is made with the 3/3 basket weave and the following

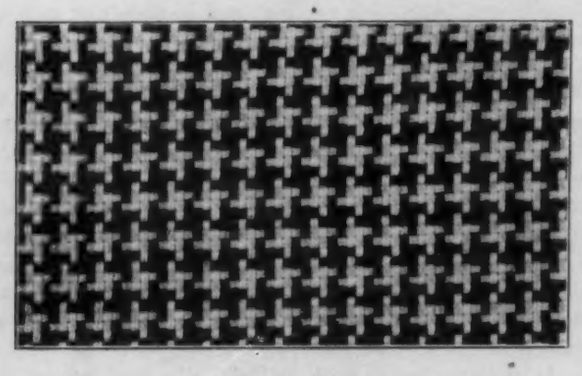


FIG. 72.

arrangement of yarns:

Warp: 6 threads black
6 threads white
Weft or Filling: 6 picks black
6 picks white

Similar patterns may be made as follows:

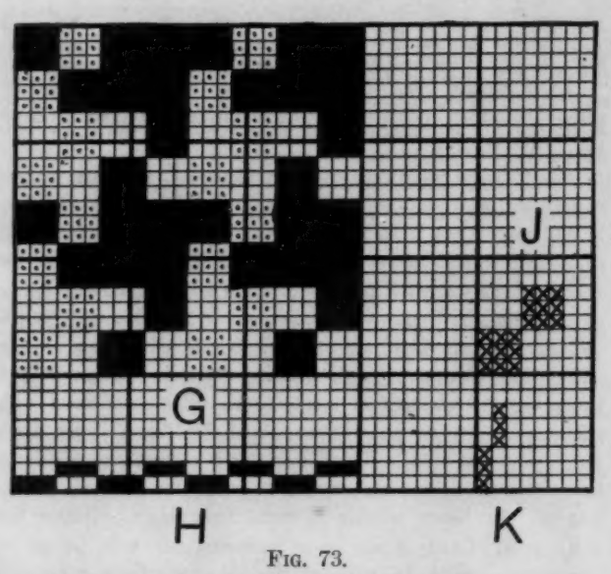


FIG. 73.

Warp and Filling: 2 black, 2 white: plain weave.
Warp and Filling: 4 black, 4 white: 2/2 basket.
Warp and Filling: 8 black, 8 white: 4/4 basket.

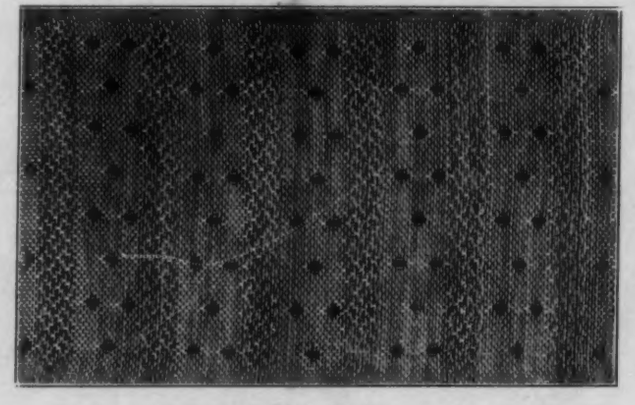


FIG. 74.

The effect in such patterns, and in several others which are made simple flat weaves and with satisfactory numbers of threads and picks per inch may be obtained before weaving by a very simple method. Take a number of threads and picks equal to say two or more repeats of the color

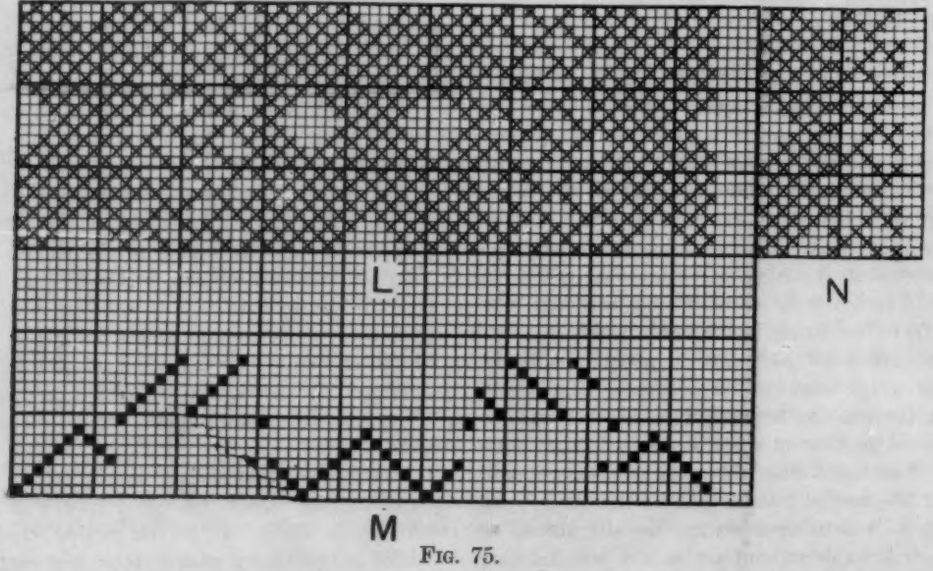


FIG. 75.

arrangement and insert lightly the weave to be used. Then mark all the squares where the dark threads appear on the surface; then mark all the squares where the dark filling appears on the surface and the resulting figure will be very similar to that which would be obtained in the loom. Thus, the figure illustrated at G in Fig. 73 will be recognized as the same as that in the cloth in Fig. 72, and the former was made by the method described above. It must be remembered that the small black dots still remaining at G in Fig. 73 really represent white threads on the surface as compared with the solid marks which represent, as already mentioned, either black threads or black picks on the surface. The unit weave is shown at J, the draft at H, and the weaving plan at K. The patterns in Fig. 7. contains 68 threads per inch and 64 picks per inch, and a two-shuttle box motion would naturally be required for the two colors of weft.

Artificial silk filling is now being used extensively in conjunction with cotton warps, and Fig. 74 illustrates an example of this kind of combination. There are 60 threads per inch and 50 picks per inch, and the design, which occupies 68 threads and 24 picks, is shown at L, Fig. 75. The diamond figures on the plain stripe are formed by the artificial silk weft floating on the surface, and they are so arranged that in any horizontal row they appear in two and singly in alternate stripes. This arrangement enhances the general effect of the pattern, but it increases the number of harnesses; on the other hand it eliminates stripiness, which is often disastrous. A simple crepe effect on 6 harnesses is used for the remaining stripes. The draft is shown at M and the weaving plan on 14 harnesses and 24 picks at N.

(To be continued.)

KNITTING DEPARTMENT.

DESIGNING ON THE SPRING NEEDLE CIRCULAR FRAME.

BY WILLIAM DAVIS, M. A.

LACE OR FAIRY WEB DESIGNS.

Lace or fairy web fabric gives one of the most attractive forms of variation of knitted cloth. Fashions run in a cycle and in this cycle are the different phases of knitted goods within the scope of the machine mechanism at the disposal of the manufacturer and with each change the designer requires to be ready with something fresh and new which will attract the customer to his goods. In all such changes of fashion, color and design play a prominent part. Sometimes the fabric structure remains quite elementary and the requirements of fashion are met with dashes of color introduced in stripe form in the length or breadth. Again this color may be accompanied by a pattern which in its production involves some important modification of the fabric structure. Whatever the change, the designer requires to keep in mind the balance between the design fabric structure and the coloring.

If all of these factors are employed to their utmost in one and the same production, then the effect will appear cumbersome and overloaded. For general purposes it is found sufficient to give prominence to one or other of those forms and make it the feature of the cloth outstanding in its effect and leaving no doubt as to which has to claim the main attention of the wearer. In lace work, it is in general sufficient to give the prominence to the pattern of stitch introduced and the best basis is a plain color, white giving absolutely the best results when worked in a clear spun cotton yarn in a fine gauge of cloth so that each stitch shows up with clearness. The fine gauge of the fabric lends neatness to the design and preserves its continuity. Designs which give a clear effect in a cotton or silk thread lose much of their character when applied to a woollen cloth, where the yarns have considerable surface fibres projecting so as to obscure the openings which are the basis of the design. The surface fibre which the woollen thread possesses in such a copious measure is very useful in knit-

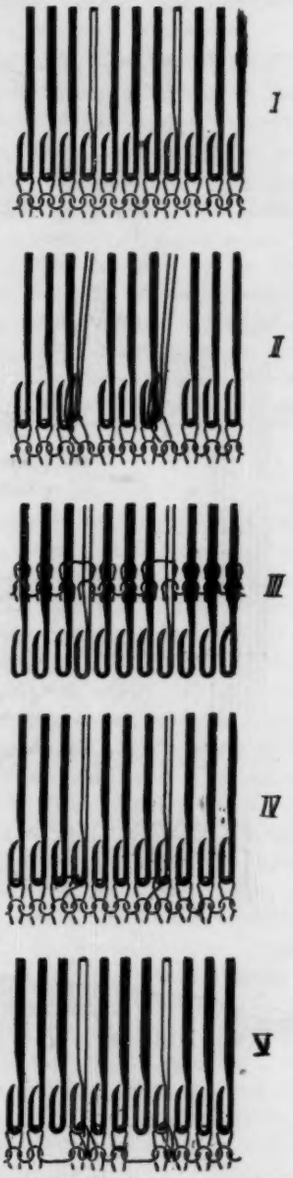


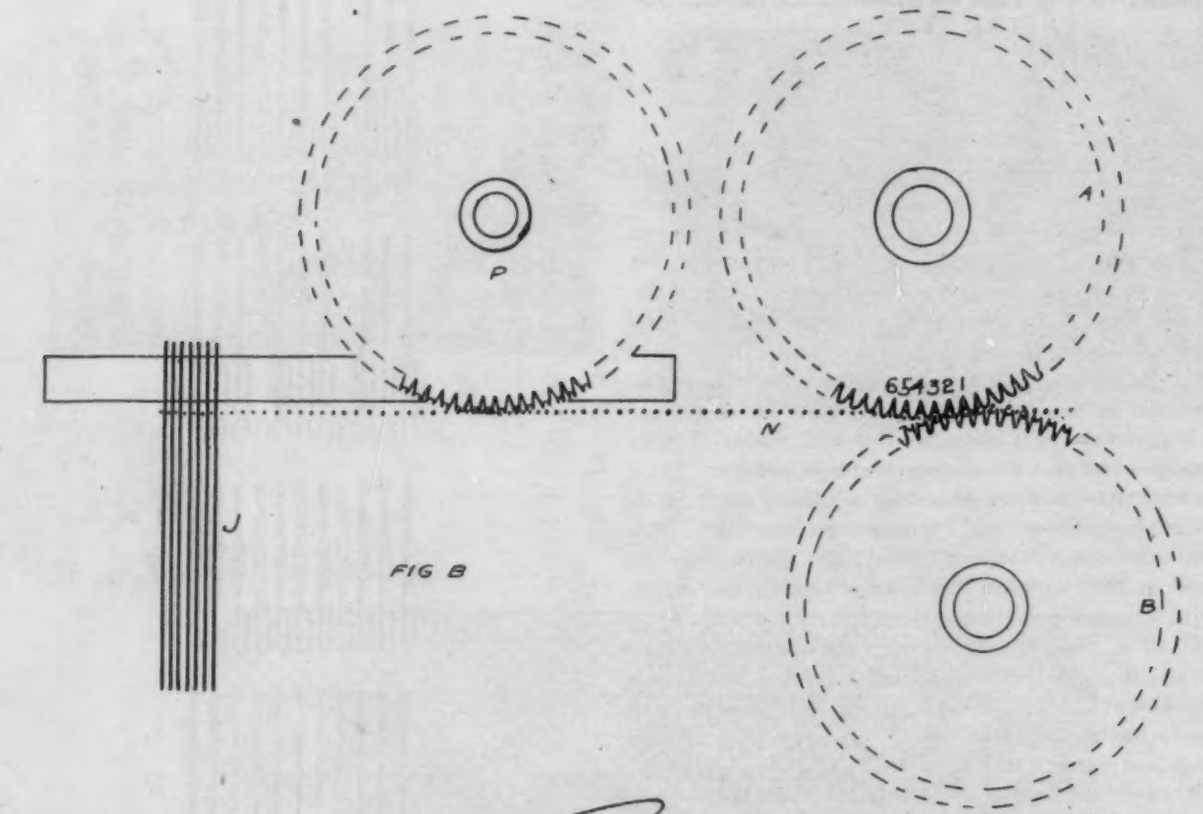
FIG. A. THE PROCESS OF TRANSFERRING BY BENDING.

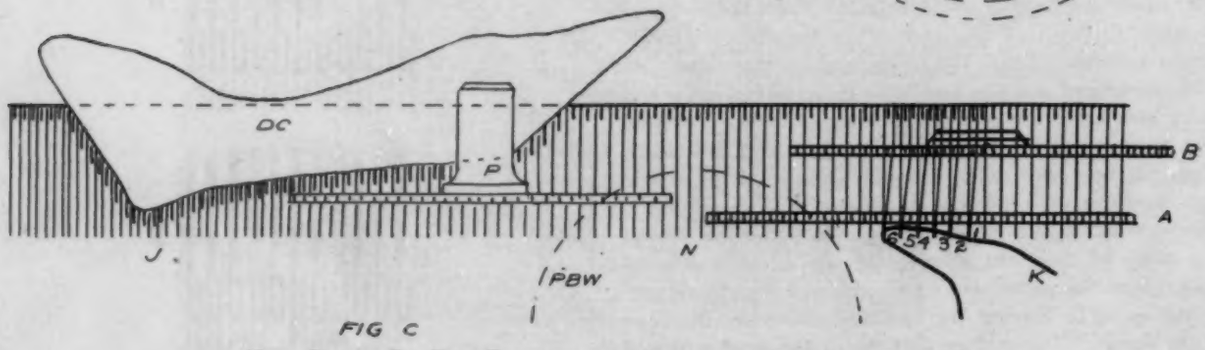
ted goods which are required for hard wear, it fills up the small spaces between the loops and imparts a more solid appearance and it is exactly this quality which militates against the successful use of woollen yarns for open work.

MODE OF PRODUCTION.

The machine which has been described as the French or German circular frame has all the attachments added for making a wide range of lace designs which find an important place in the hosiery markets of the world. Particularly of late, there has been a decided vogue, especially in Europe, for hosiery worked in openwork designs for summer wear and these have been noted for their large and varied character and scheme of design. The way in which the design is brought about is rather startling to one who has not heard of the principle before and at first sight it would seem that the proposal was scarcely within the range of practical machine building. The production of lace designs on this frame is based on the elasticity or bending property of the needles, those needles of the machine which have to be arranged in such perfect alignment and occupy their spaces with such exact precision. The work is produced by deliberately bending certain selected needles out of the straight line and continuing the process until the needle is directly under its neighbor when the transferring operation, which is the feature of this mechanism, is carried out. The process is shown in a series of diagrams in Figure A, where the succeeding stages of the process are given in diagrams I to V.

It must be understood that lace designs are made on the completed courses, that is, the ordinary operations proceed in the normal manner and any patterning has to be performed after the plain knitting course has been completed. The stitches which have just been made are hanging on the needle ends, when the selecting and transferring tackle is brought into work. In figure I is shown a set of 11 needles which are numbered from left to right consecutively, the fourth and the eighth needle being marked specially as it is those needles which have to be bent out of their path. Figure II shows this being done, needles 4 and 8 being drawn to the left one needle space until they come to have their beards or springs under needles 3 and 7. Now it will be evident, also from the diagram, that this bending has caused them to be shorter than needles 3 and 7 at the point of contact and consequently the stitches on the





FIGS. B AND C. THE TRANSFERRING APPARATUS, SIDE AND PLAN VIEWS.

needles 3 and 7 are farther out than those on needles 4 and 8, and when they are pushed back on the shanks, stitches 3 and 7 slip on to needles 4 and 8 with the result that the latter two needles come to have 1½ stitches, needles 3 and 7 having lost half their stitches. This stage is shown in Figure III of the series. The next phase in the operation is to strip needles 3 and 7 completely of their stitches by pressing their beards, drawing the stitches forward the while so that these two needles are left empty and the neighboring needles 4 and 8 have two stitches. In Figure IV of the series the half stitch is seen about to slip off the needle end and the completed operation is shown in figure V where needles 4 and 8 have two stitches hanging in their beards. All stitches are now pressed back on the needles and are ready for another course.

The apparatus used for doing this work is shown in Fig. B, which is a drawing of the attachment used by Messrs. Terrot Sohne for the purpose. The machine used is of the type described in the first of this series of articles and this train of auxiliary pattern wheels is afterwards added to the ordinary machine. The train consists of wheels A, B and P, shown in Fig. B, the needles N and the jacks J being situated in their usual position in the machine, this sketch being a side view. The wheel is cut with lace teeth which are wide at the outside so as to cover two needles, but a little farther up the opening gets much narrower so as to admit only one needle space, so that one needle has to pass under its neighbor. Whenever a point of the design requires to be made, the wheel is cut with a large opening of the form just described at that point and when such an opening comes into contact with the needles, as it does in the ordinary course of revolution, then two needles are embraced. But before the transference can be fully accomplished, the assistance of auxiliary pattern wheel B is necessary. B has two kinds of teeth, one large which just receives the needle without moving it in any way and the other small so that the corresponding needle is raised out of the normal height. This is to enable the one needle to slip under the other without danger of injuring the spring or beard and the wheel is cut to correspond with the pattern wheel above. The series of wheels, etc., as seen from above is given in Fig. C, where the corresponding parts are noted by the same letters. The position of the pattern wheel A is seen to be near the ends of the needles and that of auxiliary wheel B nearer the roots. Needles are numbered from 1 to 6 in both diagrams to show the bending of the needles out of their paths and whilst this is being done the stitches come against the part K which is placed in the position shown so as to push back the stitches when the one stitch is to be slipped over the shank of the neighboring needle. The operation of pushing back all of the stitches on to the needle shanks proper is done by the wheel PBW, also known as the push-back wheel. The completion of the lace course depends on the presser which also is cut to the pattern in hand and with small and large tooth openings, the small notches gripping the beards and pressing them, whilst the larger spaces miss the beards and do not press them. Those needles which have still the half stitches on them only are pressed so that the remaining half is pressed off and the needle corresponding is left empty, whilst the needle adjoining possesses two stitches. The knocking over of the loops is done by the ordinary discharge cam of the machine D C, by pushing forward the jacks.

From the description it will be evident that the process is a complicated one, yet it works well in practice and the patterns evolved do much to enrich the domains of the hosiery manufacturer. Naturally the chief items in making lace work in this way are the needles. The adjustment of the wheels must be perfect, so as to save the needles as much as possible. A usual defect in the setting is to have the wheels pressing too hard on the needle beards. Often, when it is found that in general the attachment is working properly, but defects occur at given points only, then the wheels are kept in the same position, whilst the needles are altered to adjust with the wheels.

(To be continued.)

THE COTTON CORNER.

One of the most interesting and practical exhibits maintained at the big Red Cross fair held in the Grand Central Palace, New York City, during the week of October 26, was the Cotton Corner, gotten up by the *New York Sun*, and under the personal direction of Miss Von Baur, head of the Woman's Department..

Each table was adorned with small trees to which were attached innumerable cotton bolls, and the walls were hung with multitudinous fabrics derived from cotton crepes, silks, velvets, and laces, as well as the coarser weaves. The entire display was planned with the idea of showing the vast number of uses to which the cotton plant is put, and to urge the extension of its use in all forms by the American people. *The Sun* went on the theory that the more cotton goods used the greater would be the output of the mills, and the larger the output of the mills the more cotton in the raw would be purchased from the planters. That this is especially desirable now, when the markets of Europe are partially closed to the cotton growers, is a self evident fact.

To Hunter College, New York City, is due the credit for showing the vast number of uses of the cotton plant—including cotton insoles, instead of felt, silk-cotton belting, rubber coat with cotton foundation, lingerie tape, corset laces, artificial flowers, and all sorts of holders, strainers, pockets, covers, etc., for use in the kitchen. They also exhibited a bed, the covering being entirely made up of cotton material—mattress, ticking, sheets, pillow slips and blankets. The latter, especially, bound with cotton silk, were much lighter and softer, while equally as warm as the heavy woolen blankets.

Wanamaker's, New York, had a splendid showing of novel fabrics evolved from cotton products, the idea being to substitute it for wool wherever practicable. These novelties included gaberdine voile, eolienne de Avignon, voile diaphane, gaze marvel, butterfly crepe, soie jacquard and eponge serge. Particular interest attaches to another material, djuma de soie, evolved from Rajah silk. The fabric was developed in France, and a single model gown of the material was sent over as a sample. Just at this time the war broke out and further importations were impossible, so with the sample available American ingenuity will have to get busy and evolve a fabric similar to it. Several walking dresses of carravel—a heavy rough material—were shown; as well as filite, a thin fabric resembling lawn.

Dyeing, Bleaching and Finishing.

THE BLEACHING OF COTTON.

BY A. F. MUSGRAVE.

Cotton bleaching, regardless of the bleaching agent employed is always a process of oxidation. Animal fibers on the other hand may be bleached by both oxidation and reduction process. The principal bleaching agents in use for cotton are chloride of lime, peroxides and permanganate of potash. We also must consider the electrolytic bleach which of course is really the same as the lime bleach. Of course chloride of lime is used much more extensively than any of the other methods owing to its cheapness. Peroxides, both hydrogen and sodium, are however being used more largely every day. The cost is considerably greater than the lime bleach but the shrinkage is less and the fiber retains the soft feel which is especially desirable in knit goods. Permanganate of potash is still in use as a bleaching agent. Its cost is said to rank very close to the peroxide method, but I do not consider that as good a white as can be produced as by the use of peroxide.

As before stated, the bleaching action on cotton is always produced by nascent oxygen. Many persons consider the chlorine in chloride of lime as the active bleaching agent. If this view was correct, cotton would be bleached by subjecting it to the action of dry chlorine gas, and such is not the case. If a perfectly dry piece of cotton is hung in an atmosphere of chlorine, no bleaching action will take place. Now if the cotton is wetted a rapid, bleaching action will be produced. This tends to show that the nascent chlorine reacts with the water to produce free oxygen and hydrochloric acid. The following equation will explain this reaction:

$$2\ Cl.\ and\ H_2O = 2\ HCl\ and\ O$$

Chloride of lime is prepared by passing chlorine gas over quick lime. A varying product is obtained, to which is given the formula $Ca\ (O\ Cl)_2$ or $Ca\ O\ Cl_2$. This compound is very unstable in solution and is broken up by the carbon dioxide of the air forming calcium carbonate, and free chlorine, according to the following equation:

$$Ca\ O\ Cl_2\ and\ CO_2 = Ca\ CO_3\ and\ 2Cl.$$

This accounts for the thin film seen on the surface of vats of bleaching powder. It is well known that better bleaches are obtained by allowing the goods from the lime bath to stand in the air for a short time. This proves the carbon dioxide of the air as having a part in the reaction.

In bleaching with peroxides let us first consider the reactions when using sodium peroxide. As is well known, the bleach bath is made up by the interaction of sulphuric acid and sodium peroxide. The substances produced are sulphate of soda and hydrogen peroxide.

$$Na_2O_2\ and\ H_2SO_4 = Na_2SO_4\ and\ H_2O_2$$

Hydrogen peroxide is stable when acid and so to make the bleach bath effective it must be thrown on the alkaline side with an alkali. The hydrogen peroxide then breaks up as follows:

$$H_2O_2 = H_2O\ and\ O$$

If the sulphuric acid were omitted and the peroxide put directly into unacidulated water free oxygen would be produced at once. Thus:

$$Na_2O_2\ and\ H_2O = 2Na\ OH\ and\ O.$$

The bleaching action would proceed so rapidly as to be wasteful. For making the bleach bath alkaline, either ammonia, silicate of soda or carbonate of potash may be used. Ammonia has the disadvantage of rapidly passing off and in a short time the bath becomes acid again. Silicate of soda is stable and the bath remains alkaline, but when the bath after bleaching is again thrown on the acid side, an insoluble precipitate of silicic acid is produced. However, by reason of its mild nature and freedom from iron, silicate of soda is largely used for this purpose.

Peroxides are the only bleaching agents which allow of the goods being scoured and bleached at the same time. This result is obtained by the addition of soap to the bleach bath after the bath has been made alkaline. Of course soap in the bath prevents the bath (after bleaching), being thrown on the acid side to aid its keeping qualities.

The permanganate bleach is carried out by immersing the cotton in a solution of permanganate of potash. The bath must be acidified as otherwise a tendering of the cotton would take place. The reaction of the permanganate bleach is as follows:

$$4\ K\ Mn\ O_4\ and\ 2H_2SO_4 = 2K_2SO_4\ and\ 4Mu\ O_2\ and\ 6O\ and\ 2H_2O.$$

The cotton acquires a dark brown color which is removed by a subsequent acid sulphite bath. Cotton seed specks are always removed more thoroughly with chloride of lime than with the other bleaching agents.

Lime bleaching is always attended by the danger of formation of oxy-cellulose and hydro-cellulose. Oxy-cellulose is formed by the use of too strong bleach liquors or by allowing the fabric to lay too long before souring. It may also be formed by particles of undissolved chloride of lime coming in contact with the goods. Hydro-cellulose is formed when cotton containing acid is dried. The carbonizing process offers a good example of what hydro-celulose is. The acid bath used for souring bleached cloth, although not as strong as carbonizing baths, will, however, on drying the goods, produce quite a concentrated acid. The use of bisulphite of soda or hyposulphite is unattended by the danger of formation of hydro-cellulose. Another advantage is, that during the anti chloring process the offensive smell is not produced as is the case when acids are used. Furthermore the elimination of chlorine is much more perfect than when using acids, and a softer fabric is produced. The softer fabric produced may be explained by the fact that when sulphuric acid is used for souring an insoluble precipitate of calcium sulphate is produced on the fiber while any calcium salt formed when using anti chlorine is soluble and is easily washed out. Theoretically hydrochloric acid would be much better than sulphuric acid for this very reason. Hydrochloric acid, however, contains varying quantities of iron which unfit it for use on bleached cloth.

In the peroxide bleach no souring is necessary, only a rinse in cold water to wash out the sodium sulphate. I have never seen a cotton tendered by bleaching with peroxide, but have frequently seen woolen goods in that state.

It is claimed that peroxide whites are permanent, whereas lime bleached goods are not. If the lime bleach is properly carried out and all chemicals washed from the fabric I doubt if its keeping qualities are at all inferior to the peroxide bleach.

A combination of the two bleaches, which is of special interest to the knit goods manufacturer is: boiling out first in a peroxide bath, washing and then bleaching lightly with lime. A very soft bleach is produced by this method. In bleaching fabrics made from poor qualities of yarn (waste, etc.), trouble is experienced with the peroxide bleach. There are very few colors which are totally bleached with peroxide. In the case of fabrics containing colored specks, etc., a preliminary strip is given with one of the hydro-sulphite preparations. A strip with hydro-sulphite may also be used in the lime bleach, replacing the caustic boil. It is claimed that a lower shrinkage is obtained in this manner; but the whites produced are not quite as good as with the regular lye boil. Cotton cloth boiled out with hydro-sulphite is not as white as that boiled out with caustic and the motes have a very red appearance. The bleaching in the lime bath also progresses much slower.

All persons engaged in the bleaching process should from time to time carry out tests for the determination of the following defects: oxy-cellulose; hydro-cellulose, and chlorine in the goods.

Oxycellulose is detected by the use of Fehlings solution. This reagent is prepared as follows: Copper solution 69.2 grams copper sulphate dissolved in one litre of water; Rochelle salt solution 173 grams, Rochelle salts dissolved in 400 cc of water. Then add 100 cc of caustic soda (516 grams per litre) and equal quantities of the solutions are mixed just before using. For instance take 30 cc of each solution to 200 of water and boil the cotton therein for 5 minutes. Rinse and dry. A reddish coloration due to the deposited copper oxide indicates oxy-cellulose.

For the detection of free acid, cut a sample of the fabric into small pieces and stir in a beaker with a small quantity of hot water. Test with fresh litmus paper. A red coloration shows acid.

To detect chlorine in fabrics use is made of the fact that free idoine produces a blue color with starch. Immerse a clipping of the fabric to be tested in a 10 per cent solution of potassium iodide to which a few cc of starch solution has been added. A blue or black coloration is evidence of free chlorine in the fabric. If only a trace of chlorine is present the color will be slow in forming, so all tests should be allowed to stand about an hour before passing final judgment.

The quality of cotton produced in the West Indies continues most satisfactory. Owing to the fashions in women's dresses there was no improvement in the demand for the best grades of cotton, but no great difficulty was experienced in disposing of all the cotton that was produced in these islands. However, at present the association can not recommend any increase in acreage. This is unfortunate, for there is no doubt that the West Indies can produce cotton equal, or even superior in quality, to that grown in any part of the world. Exports in the year ended September 30, 1913, amounted to 2,154,475 pounds of sea island and 459,460 pounds Marie Salante cotton, giving a total of nearly 7,000 bales (value $746,851), which is rather more than the quantity produced in 1912.

A NEW DEVELOPER.

Carbazol Fast Developer B Pat. is a radical departure from the usual line of developers as used in the dyeing of cotton, for the reason that dyeings obtained with it are distinguished for their fastness to washing, milling and acid boiling and of great importance for their great resistance to light. This new product is employed in exactly the same way as Beta Naphtol, Phenylenediamine, etc., for developing the shades of diamine colors, but the shades produced by its use are of much better fastness than it has hitherto been possible to obtain with the older developers in connection with the diazotizing process.

For using this developer the dyebath is prepared with dyestuff and the following ingredients, based upon 100 pounds of cotton to be dyed.

Glauber's salt or Common Salt 10 to 20 lbs.
Soda Ash 1 to 2 lbs.

According to the depth of shade required. Dye at the boil for about ¾ to one hour, preferably with indirect heating, and in as small a volume of bath as possible.

In the production of medium and deep shades the baths are not entirely exhausted, and consequently should be retained for further lots. The value of an old bath depends much upon the concentration of the liquor; the greater the amount of liquor used in dyeing the greater will be the amount of dye left in it. As a general rule from 17 to 20 times the weight of the goods to be dyed is the proper amount of water to employ, and in starting dyeing use about one-third more dyestuff than the shade approximately calls for. This allows for the proper depth of shade at the beginning. For subsequent baths, use only one-quarter to one-fifth of the quantity of soda and salt as provided for in the first bath.

When a cold water bath is prepared and charged with

Nitrate of soda 2 to 3 lbs.
Muriatic acid 32° Tw. 5 to 7½ lbs.
or
Oil of Vitriol 168° Tw. 3 to 5 lbs.

Enter the dyed and washed cotton, and work for 15 to 20 minutes, then run off and wash in a cold water bath slightly acidulated with a small amount of muriatic acid, again rinse, and pass on to the developing bath, and at once proceed to develop. Dyeings that have been diazotized should not be permitted to remain around in the dyehouse as they are generally unstable. For this reason, while they are in the nitrate bath prepare the developing bath so as to lose no time.

This bath is prepared with 1 pound of Carbazol Fast Developer B, for light shades while deep shades will require 2 pounds. The amount of developer taken is dissolved in 2 gallons of boiling water without further addition, but if the bath is to be retained for further use, add ½ pint of muriatic acid. Enter the diazotized material and work for 20 to 30 minutes cold, afterwards washing in water with a little soap, or rinse with the addition of a small quantity of soda to the water.

An acre of cotton, in Texas, the leading cotton state, yields $11.00 more than an acre planted to corn in Illinois, the leading corn state, and $14.00 more than an acre of oats in the leading oat-producing state, which is Iowa.

Notes About Men You Know.

LOST. One goat of the common or garden variety. Last seen in the possession of Miss Florence Kelly at Birmingham, November 13th. Anyone furnishing information leading to its recovery may receive a suitable reward by applying to John H. McLaughlin, Providence, R. I.

JOE BRADLEY, agent of the Merrimack Mills at Huntsville, as the leader of the Southern Textile Association's singing contingent at Birmingham, made a great hit. Those who missed hearing his rendition of "There Was an Old Woman" should insist on its repetition at the first opportunity.

C. H. GOODROE has resigned his position as superintendent of the Yazoo Yarn Mill to take effect in December. He will take charge of the carding and spinning at the Perkins Hosiery Mill, Columbus, Ga.

HARRY L. WILLIAMS, president of the Swift Mfg. Co., Columbus, Ga., has also been elected president of the Hamburger Mills of the same place.

WALTER BROADBENT, assistant carder at the Amazon Knitting Company, Muskegon, Mich., has accepted a position with the Meritas Mills, Columbus, Ga.

LOUIS W. KERR has resigned as agent at the Butler Mills, New Bedford, Mass., to become general manager of the Watts Mill, Laurens, S. C.

C. R. RIDDLE has resigned as overseer of weaving at the Hamburger Mills, Columbus, Ga., to accept a similar position at Danville, Va.

R. B. HUNT, formerly overseer of spinning at the LaGrange (Ga.) Mills, has accepted a similar position with the Ware Shoals (S. C.) Mfg. Co.

S. L. MCCRACKEN has resigned as overseer of spinning at the Lynchburg (Va.) Cotton Mills to become assistant superintendent of the Ware Shoals (S. C.) Mfg. Co.

A. S. THOMAS, formerly superintendent of the Empire Cotton Mills, Welland, Ontario, Canada, has accepted the position of general superintendent at the Stark Mills, Manchester, N. H.

T. N. JOHNSON, formerly of the Stark Mills, Manchester, N. H., has accepted the position as superintendent at the Empire Cotton Mills, Welland, Canada.

R. P. SWEENEY has returned to his former position as superintendent of the Fairmount (S. C.) Mfg. Co.

WILLIAM F. SCHADEWALD, of the Schadewald Mills, Philadelphia, died in a hospital at Palmerston, Pa., on November 6th as the result of an accidental gun shot wound received while hunting in the Pocono mountains with a party of friends.

C. E. O'PRY, formerly of Knoxville, Tenn., has accepted the position of overseer of carding at the Gibson Mills, Concord, N. C.

J. W. EAGLE has resigned as overseer of carding at the Hamilton Carhartt Mill, Rock Hill, S. C., and accepted a similar position at the Swift Mfg. Co., Columbus, Ga.

D. F. PAGE, formerly overseer of the cloth room at the Empire Cotton Mills, Welland, Ont., has accepted a similar position with the Stark Mills, Manchester, N. H.

H. W. SALMON has been promoted from superintendent to general manager of the Whittier Mills, Chattahoochee, Ga.

H. L. MCCALL has accepted the position of superintendent of the Yazoo Yarn Mills, Yazoo City, Miss.

TOM WEATHERFORD has resigned his position at the Cherry Mills, Florence, Ala., to become overseer of weaving at the Ashcraft Mills, of the same place.

J. A. MCFALLS, of Hickory, N. C., has accepted the position of overseer of spinning at the Lynchburg (Va.) Cotton Mills.

G. E. GORDON, for several years agent of the Waltham Bleachery & Dye Works, has resigned. He is succeeded by Arthur H. Paul, superintendent of the Boston Manufacturing Co., also of Waltham. Both plants are controlled by the Lyman interests.

ELIJAH L. BENJAMIN, for 25 years an overseer for the American Thread Co., at Willimantic, Conn., has been retired from active service and placed on the company's list of pensioners. Since he first took charge, his department has grown to large proportions. His fellow workmen gave him a diamond scarf pin.

W. O. BUZZELL, for several years overseer of the weave room at the Bristol Mill, New Bedford, Mass., severed his connection with that corporation recently. Mr. Buzzell was succeeded by John Crowther, who has been overseer.

W. H. KINGSLEY, formerly overseer of weaving at Jewett City, Conn., has resigned to accept a similar position in Lowell, Mass.

JIM HAGOOD has accepted the position of superintendent of the Pendleton Mfg. Co., Autun, S. C.

CAPT. H. P. MEIKLEHAM, agent for the Massachusetts Mills In Georgia, was prevented from attending the Southern Textile convention in Birmingham by a business trip to New England.

IRA. L. PHILLIPS, formerly superintendent of the Louisville Cotton Mills Co., has been selected to act as general manager of the recently incorporated Kentucky Cotton Yarn Co.

J. D. TAYLOR, president of the Summerville (Ga.) Cotton Mills, has been elected president of the Atlanta (Ga.) Refining & Mfg. Co.

WILLIAM A. MITCHELL, well known as the man who gets things done, and agent of the Massachusetts Mills, Lowell, has just arrived home after seven weeks spent in Europe. Mr. Mitchell went over to secure a cargo of dyestuffs from Germany.

C. ENOS BEAN, the well known mill superintendent, is now located at Taunton, Mass.

R. S. ALLRED has accepted the position of superintendent of the A. A. Shuford Mill at Hickory, N. C.

WILLIAM C. DAMON, who severed his connection with the A. L. Sayles Mill, at Pascoag, R. I., on November 1 as manufacturing agent, will assume the duties of a new position on January 1.

J. R. WILKINS has been promoted from second hand to overseer of weaving at the Pacolet Mills, Trough, S. C.

J. T. COTHRAN has resigned as overseer of cloth room at the Ninety-Six (S. C.) Cotton Mills.

L. M. CARPENTER, assistant superintendent of the mill of the Ashland Cotton Co., at Jewett City, Conn., has been advanced to the full superintendency.

EDW. L. LOVERING of Boston, Mass., was in Lindale, Ga., recently visiting the Massachusetts Mills, of which he is treasurer.

GEORGE W. DUNN, who for some eight years has been purchasing agent for the Lancaster Mills, Clinton, Mass., is now engaged in a similar capacity for a group of mills operated by the mill management department of Lockwood, Greene & Co., Boston, among these mills being the Lancaster Mills, of Clinton.

M. B. LANCASTER has been promoted from overseer of weaving to superintendent of the Pacolet Mills, Trough, S. C.

E. C. LITTLE has resigned as overseer of carding at the Avondale Mills, Birmingham.

ROBERT L. CRANDALL, formerly of Cohoes, N. Y., is now acting as overseer of finishing at the mill of the Fuld & Hatch Knitting Co.

L. W. KING has resigned as overseer of carding at Fort Mill, S. C., to accept a similar position at the Avondale Mills.

D. M. MEYERS, formerly superintendent of the Brown Mill Concord, N. C., has accepted a similar position with the New Century Mill, South Boston, Va.

THOMAS J. O'MALLEY has resigned from the finishing department of the Lancaster Mills, Clinton, Mass., following a service extending over a period of 32 years.

T. R. HART of the Aurora Mills, Burlington, N. C., has accepted a position in the experimental department of the Barber-Colman Co., Rockford, Ill.

O. F. BENTON has been promoted from overseer of spinning to superintendent of the Berryton (Ga.) Mills.

G. A. H. BARNHARDT, formerly second hand in weaving at the Dunean Mill of Greenville, S. C., is now overseer of weaving at the Brown Mfg. Co., Concord, N. C.

GEORGE R. SIMCOX, for many years Master Mechanic for the Avondale Mills of Birmingham, Ala., has been transferred to Sylacauga, Ala., where he will have charge of the power plants of the Eva Jane Mills and Central Mills.

W. B. DAVIS, of the Davis Hosiery Mills, Chattanooga, Tenn., has been made a member of the Board of Governors of the Chattanooga Manufacturers Association.

C. A. RABT succeeds John H. McReynolds as president of the Richmond Spinning Co., Chattanooga, Tenn.

WALTER B. KNIGHT, agent in charge of the three mills of the Quidnick-Windham Co., at Willimantic, Conn.,, has in addition to his present duties been placed in charge of the Quidnick Mill of the same company, at Anthony, R. I., succeeding at the latter plant Alton L. R. Hambly, resigned.

LOUIS BILLINGTON, during the past 18 years in charge of the office of the Warwick Mills, Centreville, R. I., is now conected with the Lancaster Mills, Clinton, where he has charge of the office.

A. H. BAHNSON, secretary and treasurer of the Arista Mills, Winston-Salem, N. C., was married on November 18th, to Miss Elizabeth Hill of that city.

G. W. CORN has been promoted from second hand to overseer of weave room No. 2 at the Monaghan Mills, Greenville, S. C.

JAMES YATES has resigned as second hand in spinning at the Shawmut (Ala.) Mills to become overseer of spinning, spooling and warping at the Buck Creek Mill.

H. D. MARTIN handed in his resignation as director of the Putnam Trade School, Putnam, Conn., operative December 1. He has been with the school since its opening about a year ago. Mr. Martin has had a large experience in the textile business, having been superintendent of many mills, and his anxiety to get back into mill life is his reason for resigning.

J. S. LINDER has resigned as overseer of weaving at Bath, S. C., to accept a similar position at the Alexander City (Ala.) Mills.

R. F. BAGWELL of Ware Shoals, S. C., has accepted the position of superintendent of the D. E. Converse Co., Glendale, S. C.

THOMAS GLASGOW, overseer of the cloth room at the Nottingham Mills, Providence, R. I., during the past year, has accepted a similar position at the Postex Cotton Mills, Post City, Texas. He will be employed by Frank W. Gurry, who recently resigned as superintendent of the Nottingham Mills to go to Texas and take charge of the Postex Cotton Mills.

T. N. VAN DYKE, treasurer and general manager Richmond Spinning Mills, Chattanooga, Tenn., succeeds J. H. McReynolds on the board of directors.

J. F. HOLT of Philadelphia, has accepted the position of overseer of dyeing at the Lanett Bleachery and Dye Works, West Point, Ga.

JOSEFH A. BENNETT, superintendent of the Windsor Print Works, who in an automobile accident was injured several weeks ago at Canaan, Conn., has been removed to his home in North Adams, Mass. Although the injuries were of a serious nature, Mr. Bennett has nearly recovered.

OBADIAH BUTLER, the former superintendent of the Bristol Mill, at New Bedford, Mass., and who is now in complete charge of the mills of the Canadian Connecticut Cotton Co., Sherbrooke, Quebec, and the plants of the Connecticut Cotton Co., Danielson, Conn., was in New Bedford recently renewing acquaintances.

R. O. ROBERTS has handed in his resignation as loom-fixer at the Washington Mills, Fries, Va. He will go north and enter the Lowell Textile School, Lowell, Mass.

HARRY KENWORTHY, boss dyer at the mill of the Hope Webbing Co., Pawtucket and Providence, R. I., has hung up new golfing laurels. He recently turned in the best amateur score in the mixed amateur and professional tournament, which was held at the Metacomet Golf Club.

LESTER FIELD, who was one of the graduates of the Bradford Durfee Textile School, Fall River, last spring, is now connected with the Esmond Mills, Esmond, R. I., having recently accepted a position there.

JOHN A. SWEETSER has been appointed assistant treasurer of the Boston Manufacturing Co., and Whittenton Manufacturing Co., of Massachusetts, and Salmon Falls Manufacturing Co., of New Hampshire.

D. A. PROVOST, recently boss dyer for the Great Falls Woolen Co., has resigned and will accept a position in a Providence mill.

PETER J. FORAND, who has been employed in the south end mills of New Bedford, has resigned to accept a position of overseer in Warren, R. I.

HORMISDAS HOULE, who recently resigned his position in the spinning room af the Manville mill, at Manville, R. I., has gone to Montmorency Falls, Quebec, where he has accepted a position as boss spinner.

Practical Problems Discussed by Cotton's Readers

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so indorsed. This department is open to all. Suitable letters are paid for in cash.

WARP CONTRACTION OR "TAKE-UP."

EDITOR COTTON:

The question in regards to "take up" as brought out by "Red" (Georgia) in the November issue of COTTON is one that is often quite confusing.

"Take up" is the term applied to the decrease in length that a certain length of warp will assume when woven into cloth. It is governed by the construction of the fabric and depends upon the counts of yarn used, the weave and other such factors. "Take up" is caused by the interlacing of the warp and filling. In measuring the amount of "take up" in a certain piece of cloth in the loom it is usually customary to carefully measure a yard of warp on the beam and mark it plainly. After weaving, the cloth is measured between these marks and the "take up" figured.

In figuring "take up" the warp length is considered 100 per cent and the cloth length as a certain percentage of the warp length. In the case brought up by "Red," assuming that the "take up" is 8 per cent, then 63 yards, the length of a cut of cloth is 92 per cent of the warp length required to weave it. In other words to produce a cut of cloth 63 yards long with 8 per cent take up it would be necessary to make the warp 68.47 yards long. This is found by dividing 63 yards by .92.

$$63 \div .92 = 68.47 \text{ yards.}$$

I do not understand how "Red" gets 6.84 yards to add to 63 yards to get the warp length, considering that 63 yards is 92 per cent of the warp length, except that he divided 63 yards by 9.2 which is wholly wrong. A 70 yard warp would produce a 63 yard cut of cloth only when 10 per cent "take up" occurs.

The following table shows the inches of warp required to produce 36 inches of cloth from the loom with a take up of 1 to 12 per cent.

Per cent of "take up"	Inches warp required per 36 inches woven cloth
1	36.36 inches
2	36.73 inches
3	37.11 inches
4	37.50 inches
5	37.89 inches
6	38.30 inches
7	38.71 inches
8	39.13 inches
9	39.56 inches
10	40.00 inches
11	40.45 inches
12	40.91 inches

In figuring the per cent of "take up" from a sample of cloth the method is the opposite used in figuring from the warp beam. The procedure is as follows: Carefully measure 36 inches of cloth and mark plainly. Then extract a warp thread, and stretching it to its full length, carefully measure the length between the marks. This gives the warp beam length to produce a yard of cloth. In looking over some old notes on analysis the writer came across the following example, showing this method of figuring "take up."

Length of warp thread in cloth = 36 inches.
Length of warp thread extracted = 38.25 inches.

$$36 \div 38.25 = .9411$$
$$100 - .9411 = .0589$$

This gives a take up of 5.89 per cent in this case.

Owing to a change in weave, such as a sateen stripe, the warp threads will not all take up the same amount. This makes the use of two and sometimes more beams necessary.

I trust this explanation will show "Red" his error and clear up the misunderstanding he has of "take up."

H. C. W. (Mass.)

EDITOR COTTON:

I notice a query by "Red" in regard to warp contraction in your November issue and it is a point that used to puzzle me also.

You are figuring warp contraction, therefore the warp yards should be considered the starting point and called 100 per cent. Let us say that these warp yards actually contract to 63 cloth yards. The percentage of contraction would then be ten. If your warp yardage was 70 to start with; then as 100 per cent is to 70 so is X percent to 63. X = 90 and 100 — 90 = 10 percent.

If it takes only 68 yards of warp to produce 63 yards of cloth, the contraction is then 100 : 68 = X : 63, or X = 92.64 and 100 — 92.64 = 7.36 percent contraction.

The confusing part of it is that you cannot work this backwards. I do not know the actual facts with this particular cloth, but let us assume that 70 yards of warp will make 63 yards of cloth. The contraction of the warp yards is 10 percent as I have shown.

Let us now say that you received an order to make 63 yards of cloth, you could not in this case add 10 percent to 63 and get 69.3 yards of warp as a correct answer, for you are now starting with the cloth and are actually figuring elongation rather than contraction. The percent to use in this case would be a little over eleven percent; that is 63 × 1.111 = 69.99 yards or practically 70 yards. This percentage is obtained by dividing 70 by 63.

To sum up, if 70 yards of warp = 63 yards of cloth, your contraction of warp yards is 100 to 90 or 10 per cent, and your elongation of cloth is 100 to 111.1 or 11.1 percent. I should be glad to explain by more examples if I have not made myself perfectly clear.

"Lowell" (Mass.)

EDITOR COTTON:

Your correspondent, "Red. (Georgia)," raises a very important point in regard to percentages, and although actual figures usually obtain in practice, percentages are sometimes introduced: when this is the case great care

must be taken in order that a correct result may be obtained.

The definition 37 inches, 48 × 48, 4 yard goods 63 yards per cut appears to the writer to be of local significance, and may be wrongly interpreted by an outsider. The actual percentage calculation with respect to the relative length of warp and cloth may, however, be attempted without considering the other factors mentioned.

First of all there is no contraction from cloth to warp; all contractions in length naturally take place from warp to cloth, and since this contraction is a varying quantity, depending upon several factors which are outside the present discussion, it would appear that the simplest method, and the correct method, would be to let the warp, no matter of what length, be equal to 100 per cent. If this be taken as the correct method or the usual method, then it is obvious that 8 per cent contraction from warp length to cloth length would mean that the length of the cloth is 92 per cent as compared with 100 per cent of the warp. Thus, if L = length of warp, we have:

$$L - \frac{8L}{100} = 63 \text{ yards of cloth}$$

and $92L = 6300$

whence L = 68.48 yards, (actually 68.478) or more simply

$$63 \text{ yards of cloth} \times \frac{100}{92} = 68.48 \text{ yards of warp.}$$

If, however, we required 8 per cent more length of warp than cloth, the relative percentages are quite different. In this case the 100 per cent (referring to cloth) must be increased to 108. Let L again equal the length of warp required and wehave: L = 63 + 8/100 of 63 = 63 + 504/100 = 68.04 yards. Or again, more simply 63 yards of cloth × 108/100 = 68.04 yards of warp.

In neither case is there any allowance made for waste due to tying-on or drawing-in the warp, etc.

It will be seen that in the first case it is necessary to subtract 8 per cent from the 100 per cent, while in the second case it is necessary to add 8 per cent to the 100 per cent. It therefore depends altogether upon whether the warp or the cloth is reckoned as 100 per cent, but if the difference in length is termed "contraction" it should be taken as a percentage taken from 100 as in the first example.

The problem may be compared in a general way with a party of 4; if one of the party leaves it is a reduction of 25 per cent, but when and if he returns it is an addition of 33⅓ per cent.

We need hardly to say that when it is necessary to find the length of warp for a given length of cloth, percentages need not be introduced at all.

"Outsider."

PREACHING AND WASTE.

EDITOR COTTON:

In the September issue I read with interest "Lane's" letter, and also that of "X. Y. Z. A." Both letters are very good excepting for one or two statements. For instance "Lanes" says in the managing of a room, you have not got to be a preacher. Why not?

To my mind, preaching and motion study are the two factors most needed in running a room. When in charge of a card room I did much actual preaching to the tenders making the most bad work, and my preaching kept the bad work down very low. In fact, many weeks would pass without a bad bobbin from one-half the tenders. I always have a hank board showing the number of the clocks and also the number of hanks turned off. On this same board I show the number of bad bobbins maue by each tender.

Following is a sample sermon to a tender making bad work:

"You are one of the girls that are keeping me in hot water. Every day I am called to the cloth room to look over the defective cloth. I have no argument to offer to defend myself for I am forced to admit that many threads in the cloth are made defective by double and single roving, also by clearer waste. Now I am not one of the discharging sort, and would not care to discharge you, in fact it would give me much mental pain to do so, but what can I do if you continue making bad work? There is only one result. Can you offer one good excuse for making double and single? Your getting bad work from preceding processes will not be accepted as an excuse. If you get bad work save it."

This kind of preaching will keep down the bad work, but one must keep it up. There is no excuse for any tender making double and single, and if one can be advanced I would be very glad to know it.

I agree with both the gentlemen regarding the management being to blame for cut waste, however, it may be interesting to both to know that I know of a Massachusetts mill that allows the roving to be cut at this writing. In the mill in question a great amount of bad roving is made. The oiler has charge of giving out the roving to the tenders after it is sorted out by the marks. Then all bobbins that are not marked are taken to the picker room, and there the oiler cuts every bobbin and scatters the cut waste over the mixing. The superintendent will pass by and not a word will be said.

I know of a few mills in New Bedford, Mass., where a great amount of cutting was allowed by carders. This was in 1911, and perhaps by this time the practice is discontinued. I hope it is.

I remember when down in a North Carolina mill, while being shown through the mill I noticed a tender cutting pieces in the back alley. I looked at the overseer who only winked at me and smiled. I know of a great many other cases too numerous to mention.

However, there is one telltale to the slashing of pieces and that is the condition of the bobbins, and I want to say right here that I have visited few mills where no bobbins could be found with knife marks on them. Let the reader, after reading this letter, go to the creel and spooler boxes, and see how many bobbins he will find that have been knifed, but be honest about it. "Lewis" gave us nothing new, but such a letter will be borne in mind by those guilty of this common practice, especially if they have a little pride.

In answer to the two questions by "X. Y. Z. A." I would state:

(1.) That as the waste was reworked previous to my taking charge it was never weighed. After stopping the machine the lap waste per week averaged about 200 pounds from a production of about 40,000 pounds. I hope "X. Y. Z. A." will see how this makes it impossible for me to give

him the percentage. However, for his benefit I will say that at least two faller weights could be added to the fallers. This enabled the making of a hard and much narrower cop which was appreciated by the weavers. The weaving waste was reduced 10 per cent.

(2.) What is waste? When applied to cotton, it means fibers stripped of their waxy walls which aids to destroy the strength of the cross-section of the thread, or in other words, unproductive. By "waste" is generally meant such material as is rendered either wholly or partially useless in the manufacture of products of all kinds, but the name is sometimes retained long after a substance, at one time of little or no value, has been utilized.

"Waste silk," for instance, is now a valuable material, though this name for it is kept up.

The various kinds of waste from woolen mills and from the cutting up of woolen fabrics are either worked up again into yarn or felt, or are ground into flock for paper hangings.

In closing I wish to state for the benefit of all readers that are in charge of a mill, if they are reworking the clearer waste, let them stop it for at least three months, and then they can judge for themselves whether my letter which appeared in the July issue of COTTON should receive commendation.

Wash. (Mass.)

HOW TO SET COMBERS.

EDITOR COTTON:

In answer to "D. J." (Maine), I also was lost with the comber setting given by "W. N. S.," but I will give a setting which represents my experience on 1⅜ inch peeler cotton, and is giving good results and production.

The first thing I do is to lift the top comber out of the way, it being understood that the needles are always kept in good condition. Then take out the top feed rolls and leather detaching rolls. Take out the lap aprons, web pans and brasses. Unhook the feed roll springs and throw the hook back out of the way. Then take out the steel detaching roll and hang it up out of the way. After this is done take off the doffer bonnets and the doffer and nipper rods. Remove the brush shaft, reverse the brushes and set so as to just clear the brass needle bars.

After the comber has been well cleaned and all repairs done, start to reset by turning the comber to five index and put in the steel detaching roll, setting the segment to detaching roll with 1⅛ inch gage. Then put in the feed roll and set in to detaching roll with a 1 15/16 inch gage. Then set the cushion plates to nippers so as to bite paper all the way across. Place the stands and nipper frames in order on the floor and slide the feed roll through endways. Then lift them altogether onto the comber and put in the stand bolts and check. Then set the nipper frames by starting in the middle and working endways.

First get an angle of about 30 degrees on the nipper knife, then set the cushion plate to the detaching roll with a 1 7/16 inch gage, using a number 19 needle gage to get the distance from the segment. After all nipper frames are set, screw up the bumper screws on the front of the nipper frames and tighten the check nuts; then tighten the stand bolts and put on the nipper rods. Set by using the nuts on the rods so as to draw a number 27 needle gauge between the front bumper screws and the nipper stands, being certain to have the ball in the nipper cams at the lowest point. After all the rods are set, turn the comber to number seven index, screw up the other bumper screws tight and tighten the check nuts; then turn the comber round to the first row of needles and set the nipper to the needles by using a number 19 needle gauge. Set the top combs by first putting a leather detaching roll in place and giving the top comb an angle of 35 degrees. Set a number 20 gauge having 1/64 of an inch between the leather roll and combs. Then put on the detaching roll saddles, put the leather detaching rolls in place and set them to segment with paper between the rolls and segment, with index set at 6½. The steel detaching roll should move back at 1⅜ index and forward at 6 index. The nippers should nip at 11½ index. Be sure that the two sets nip at the same time. Then put on the doffer and doffer bonnets, the lap aprons, web pans and brasses. Set the brass rolls parallel with a number 22 gage between brass rolls and leather detaching rolls. Be sure to polish all parts that the sliver passes over with some metal polish.

I am running a 410 grain lap, throwing out 20 per cent waste and getting 51 grain sliver, with a 13 tooth feed gear and getting very good results and production. If the comber is throwing out too much waste, it can be altered by moving the feed disk so as to feed somewhat earlier.

J. J. L. (R. I.)

FACTORS OF SUCCESS.

EDITOR COTTON:

Any man with ordinary intelligence can learn the theory of mill work. The mechanism of the several respective machines. Yet some attend textile schools and then spend years trying to superintend or manage a cotton mill only to fall down on the job and have to learn something else in order to earn a livelihood. Others with plenty of intelligence will work in the mill from boyhood until they are old men and never work up to any position of importance.

What is the trouble with these fellows? Ask me what is the greatest asset to successful mill management and I will unhesitatingly answer—discipline. To be able to control. To possess that individuality that makes a man a leader. To lack that power or to have never tried to cultivate a disposition suitable for the higher positions means failure.

I once worked for a man who was thoroughly practical, and wanted to run his job, but he had no more discipline about the plant than as if it had no head. I worked for another man who never did a day's work in the mill, yet he was a success as a mill man, because he was a good disciplinarian.

Some men are not by nature capacitated for as great work as are others. We are like a machine to some extent, we have a limit. Some reach their limits early in life and then growl because someone doesn't push them higher, while others have not and never will reach their limit because they are prepared in mind and disposition to grasp any problem which may arise with a determination to master it and when this one is overcome it has strengthened them for the next one.

It has been said, "My mind to me a kingdom is," but our minds are unlike the material kingdom of this earth. These have a limit, while our minds may grow and expand, conquering problem after problem and at last we find that each one conquered brings us to the border of others.

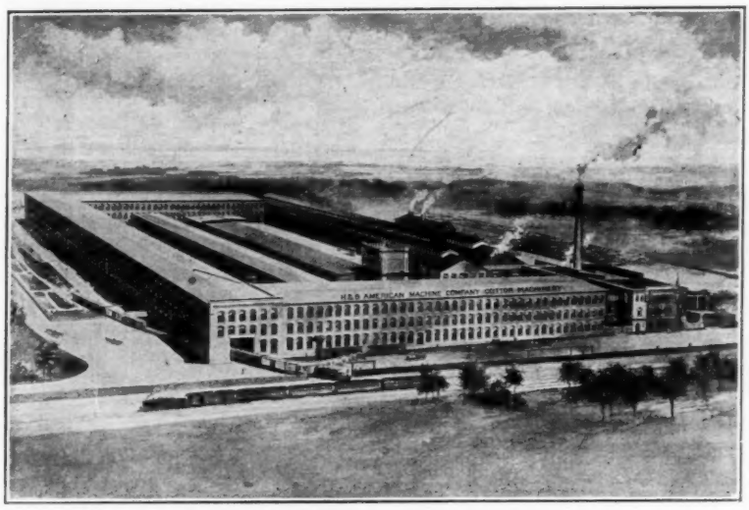
C. E. RILEY, Pres.
Boston Office
65 Franklin Street

Southern Offices
814-815 Empire Bldg.,
Atlanta, Ga.

COTTON MACHINERY

Opening and Picking Machinery

Card Room Machinery



Spinning Room Machinery

Twisters for Wet or Dry Work

With Band or Tape Drive

H. & B. AMERICAN MACHINE COMPANY
PAWTUCKET, R. I.

There is absolutely nothing in the world to be compared to the human mind for growth. And in order to get the best out of ourselves we should find out just what line of endeavor or work we are best fitted for by nature. To illustrate, some men are naturally politicians, others are talented to practice medicine, others law, and on and on throughout the entire catalogue of professions. A man having the natural ability for one profession never gets the best results while working at another and where his natural ability is limited, that is, where he does not possess the talent for, or the talent required for a certain profession it is useless to try to push him forward in that kind of work because he soon must fall down and start on something else.

Why do we in the textile industry see so many changes take place? We pick up the paper and note that Mr. so-and-so of mill so-and-so, superintendent, overseer or second hand, has accepted a similar position at some other place. Why all of this changing? It isn't so conspicuous in other lines of industry. There is absolutely no answer that will cover the whole ground except one, and that is someone at the mill where the change has taken place has gone beyond his limit. He is holding a place for which he is not capacitated. It may be the man that gets through and it may be the man higher up. At any rate if the men and their positions were equal there would be no necessity for a change. Because all sensible men can and will get together and settle their differences and work together for the best interest of the plant.

But when a president tries to make a superintendent out of a man who is incompetent to be an overseer, then he shows the lack of *his* competency and also gets the position of superintendent and the man who is supposed to be the superintendent out of balance and causes more trouble because he (the superintendent) is too narrow minded for the place and at once begins to feel his importance. This leads to an overbearing disposition. The overseers one by one get tired of being insulted and hence the changing. I do not believe in promoting people until they prove their worthiness. Neither do I believe in holding a man out of a higher position when he is competent to fill it, because he is such a good man on the position he now holds.

The qualifications for a manager, superintendent or overseer should be honesty, truthfulness, cleanliness, good business judgment and a disciplinarian. He should be honest, then he will deal squarely with the employer and the employed. He should be truthful because one lie will shake the confidence of all concerned and it is certainly a hard job to work for a man in whom you have no confidence. For instance, I once knew a superintendent to order a certain thing done and his order was carried out after much objection on the part of the overseer. As soon as the change was made the breaking strength of the yarn dropped ten pounds. After many tests were made and the work watched for several days this superintendent said to just let it go as the work was running better and he believed it was better yarn. Of course everyone connected with the work knew better and we changed the work back and said no more about it. This man had rather tell an untruth than to acknowledge his mistake even though the untruth or the result of not acknowledging his error should cost the company several thousand dollars. After this happened, I could never have the confidence in the man that one should have in his employer.

The manager, superintendent or overseer should be clean in appearance and exact the same from all employees. If one is not neat and tidy in his personal appearance he is not likely to be so with his work. They should be clean in principle and character as well. A man who cannot be an example of good character is unfit for a responsible position, especially where he has charge of women and children. The management of the mills are altogether responsible for the grade of people that populate their village. If they would correct, instruct and insist on those who live in the village and work in the mill being of good character and discharge those who are not it would improve things wonderfully. The men who occupy these positions should be men who use their influence to upbuild the employees, mentally, morally and physically. When this is done their individual usefulness and efficiency in the mill will also be increased.

I would suggest just here that those men who have the authority of selecting the superintendents and overseers have an investigation and ascertain in what direction the influence of their men is used. Some will undoubtedly be surprised.

The help at all times should be dealt with firmly but kindly and pleasantly. If you are a superintendent and one of the card hands comes to your office and asks you a question, do not "bawl him out" by telling him not to bother you, but to see the carder. It is just as easy and a lot more effective to look up with a smile and state that the carder looks after that and to always see the man for whom he is working. By so doing one doesn't make an enemy but a friend, and at the same time teaches the fellow who his boss is. Don't go around with a stiff neck and a frown across your face trying to make everyone afraid of you, the day has passed when the employees run their jobs because they are afraid of the boss. They run their jobs because they are being treated nicely and have learned to respect the boss for his consideration of their welfare. I know that good kind treatment will come nearer holding help and helping every machine in operation than big pay and ill treatment. It matters not how financially poor one is, he usually appreciates kindness. One cannot be a disciplinarian without being kind. However, one can be kind and not be a disciplinarian.

In conclusion, we have learned that to be a successful manager of people, one must possess certain qualifications. That some of these qualifications are gifts of nature. Others can be attained by study. If one does not possess the natural ability he is not a successful manager. He must be a disciplinarian. He must have that power to control and power to control does not only mean control someone else, but it also means power to control self as well. No person can control other people until he can control himself. Self-control applies to the body as well as the mind. Truthfulness which creates faith and confidence. Without this there can be no organized effort to accomplish an end. That the power to organize is one of the greatest assets to successful management. That some men make good overseers but poor superintendents. That there are considerable changes taking place in the cotton industry and the majority of the cases are where the men and the position are out of balance. I would advise the men higher up to watch a little closer where these changes are constantly occurring and they will be certain to make a discovery.

A poorly kept village and mill reflect discredit on those in charge and deservedly so. While a well kept village and mill reflect great credit on the management. To keep a village and mill clean and in a tidy condition goes far toward constituting a well managed mill.

Overseer. (Ala.)

PROGRESSIVE FLAT SETTING.

EDITOR COTTON:

I see in the September issue of COTTON where "Practical," (N. C.) makes his confession of faith in favor of progressive settings. I want to say right here that "Practical" has not done himself justice in his article.

There is only one good reason for progressive settings, and that is to set the first flats away so that the carding action would be more gradual and give the matted stock a chance to disentangle itself. But "Practical" does not even mention this in his article. I think that the readers of this department will agree with the writer that the practice originated from worsted overseers, for I know for a fact that in the Providence, R. I., worsted mills cotton carders are employed. When these men get back to a cotton mill again they may follow the worsted principle of carding, but as I stated in my earlier letter there is a great deal of difference in the length of the staple.

"Practical" I know is wrong when he states that progressive setting comes from experimenting. Builders do more experimenting than anyone else, and surely if progressive settings were proper they would advocate it. But he can read every builder's catalog and not find one where this method of setting is even hinted at. "Practical" gives no proofs, and he side-steps my claim of variation in the sliver which progressive settings cause.

He then winds up his article by giving his general settings, which are 10, 9 and 7. Now just think of it; this man who signs himself "Practical," claims that by setting at 10 gauge, the tops will become charged, but with his settings of 10, 9 and 7 gauge, everything is O. K. Can any reader explain this reasoning?

The chief aim of every manufacturer is safety first, in making as even a strand as possible. How can this be done with progressive settings? You should have in its cross section, as nearly as possible, the same number of fibers. I have in my article, (which appeared in the June number) given the variations I found in the weight of the slivers, and it was not what I *thought* but from actual tests. I am glad the question is being discussed, as it will cause many others to make a test, which will no doubt influence them against such settings.

"Practical" admits that I may be right when I state that setting the first flats away from the cylinder reduces the carding surface, and then again argues against his argument, which is proven by the following:

When the cylinder reaches the first flat, the fibers on its surface have a tendency to project from it on account of the centrifugal force of the cylinder, and come in contact with the teeth at the toe of the first flat. The stock is gradually drawn through the teeth of the flat, receiving more and more of a combing action, but owing to the finer wire of the flat, with the teeth more closely set, than on the cylinder, the short fibers and impurities are retained, while the long, clean fibers are passed forward. If "Practical" knows anything about a card, he will admit that

Barrett Specification Roofs

On a fine new commercial structure—

THE first glance will reveal the fact that this building is built in accordance with the newest and best ideas of commercial construction. The same intelligence which planned the ample windows and the well-balanced architectural lines provided that the roof should be laid in strict accordance with The Barrett Specification.

Why did a first-class architect adopt a manufacturer's suggestion and incorporate, verbatim, in the building specifications the ready-made formula of the Barrett Manufacturing Company?

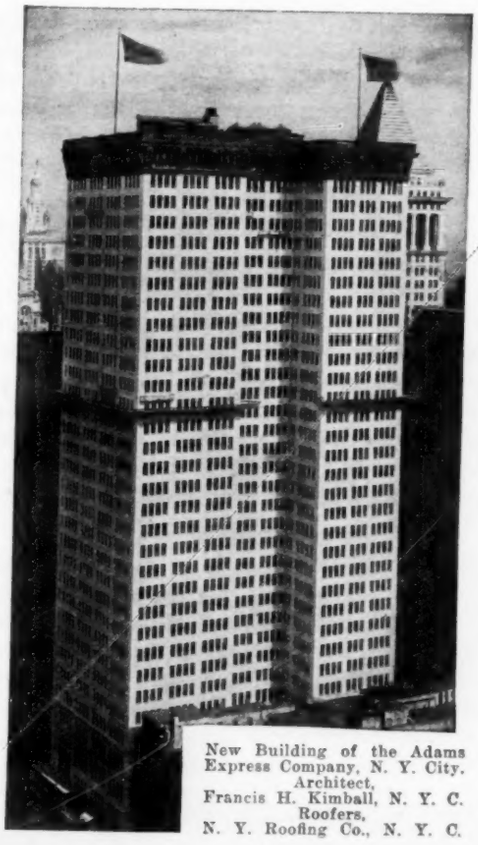
The Barrett Manufacturing Company does not lay roofs—it only supplies the coal tar pitch and tarred felt with which such roofs are made. Their interest is in having their materials rightly used, for the prestige of this type of roofing depends on good, sound workmanship fully as much as on correctness of materials.

The Barrett people can control the quality of the materials, but they can guarantee the quality of the roof only by inducing the architect or owner to have the materials used according to The Barrett Specification. This specification provides for a definite number of alternating plies of pitch and felt with a top covering of slag, gravel or tile. The process of laying the materials is described, step by step, in a practical way which any contractor can easily follow. When complete, the roof can be cut at random, and a glance at the cross section thus exposed will demonstrate whether or not the contractor has followed the specification requiring five plies of felt with pitch between at every point.

With the materials right and the workmanship right, the roof will be right.

A Barrett Specification Roof is good for upwards of twenty years without the slightest attention or repairs. It never needs painting; its first cost is less than that of any other permanent roof covering; it takes the base rate of fire insurance.

A copy of The Barrett Specification, with roofing diagrams, free on request. Address our nearest office.



New Building of the Adams Express Company, N. Y. City.
Architect,
Francis H. Kimball, N. Y. C.
Roofers,
N. Y. Roofing Co., N. Y. C.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston
St. Louis Cleveland Cincinnati
Pittsburgh Detroit Birmingham Kansas City
Minneapolis Salt Lake City Seattle

THE PATERSON MFG. CO., Limited: Montreal, Toronto, Winnipeg, Vancouver, St. John, N. B., Halifax, N. S., Sydney, N. S.

there is a difference of three thousandths between the toe and the heel of the flat, the heel being three thousandths further from the cylinder than the toe. Here is where the short fibers and other matter lodges and not in the wire, for the reason that the angle in the wire prevents the stock from finding its way to the foundation. To prove what I have stated, let "Practical" try to force a portion of stock between the wires of the flats and he will find it very difficult and almost impossible to force it to the foundation, unless a carding wire knife is used.

These are facts and can be proven by anyone enough interested to make the experiment.

In closing I would like to ask "Practical" and others interested the following questions:

(1.) With the last flats set at .007 gauge, what happens between the flats and the cylinder at this point when a lap is allowed to run out?

(2.) How can short fibers remain between the wires of the flats if the flat cleaning brush is set properly?

(3.) Does heavy grinding, rusty wire, flat combs having the wrong angle or improperly set, or injured wires cause charged flats?

(4.) If not please explain the necessity for a flat cleaning brush.

(5.) Does progressive settings allow more draft at the back of the card which is most dreaded by all carders?

Williams (Mass.)

The new building of the Loudon, Tenn., Hosiery Mills will cost $15,000, and is to be a one-story and basement structure, 164 feet long by 64 feet wide, of brick construction. It will be used for general office, storage and paper box factory. The latter will furnish the boxes in which the company will pack its product.

New Machinery and Trade Notes.

Point Hardened Lickerin Wire.

For a long time carders have known that for a lickerin to do good work the points of the teeth should be sharp or pointed. They have also known that these points gradually become dull from constant use. To overcome this trouble the SACO-LOWELL SHOPS have recently devised a process whereby they harden the points of lickerin wire, and leave the base of the wire pliable so it can easily be rolled into the grooves of the lickerin.

They now cover all lickerins with this point hardened wire, both for new cards and all lickerins repaired for mills. They can also furnish this wire to mills doing their own repairs, and can also furnish rewinding parts to all parties wishing an equipment for rewinding their own lickerins. This company maintains southern offices at Charlotte, N. C., and Greenville, S. C.

A Belting Manual.

Every overseer in the mill has something to do with belts. They should, therefore, be particularly interested in a belt manual containing much special information along those lines. Such a belt manual in a handy pocket form may be secured absolutely free by signing and sending to the GRATON & KNIGHT MFG. CO., Worcester, Mass., the little coupon printed in their advertisement monthly.

Textile Quarterly No. 8, issued by the WESTINGHOUSE ELECTRIC & MFG. CO., consists of a reprint of a paper by Mr. A. E. Rickards, general manager of the Industrial Engineering Company, Pittsburgh, Pa., in the Electric Journal on the "Situation Before the Cotton Textile Manufacturers." The paper is quite a thorough discussion and analysis of the cotton textile industry with regard to expense of operation and the profits to be derived therefrom. A number of tables of data are given as well as curves showing the proportion of different kinds of power used to drive these mills. The booklet is well illustrated with a number of textile installations.

The News of a Century Ago.

October *Cotton Chats,* published by the DRAPER COMPANY, Hopedale, Mass., contains the following interesting quotation from the files of the Evening Post of 1814 and credited to the Richmond Daily Compiler, August 17, 1814:

"*The Loom*—This admirable piece of mechanism, at once the triumph of American ingenuity and one of the surest pillars of her independence remains still at the Capitol for the inspection and gratification of the curious. A number of ladies and gentlemen visited it yesterday, and all were surprised and delighted at the simplicity of its construction and movement, the rapidity of its execution, and the excellence of the fabrick which it produces. *That* now in the loom, is a piece of cotton shirting worth about 75 cents per yard, and it is truly interesting to observe how visibly to the eye the operation of the machine causes it to grow into existence. We are told that a young girl of ordinary capacity may in two or three days learn to weave at the rate of fifteen yards a day, and a more skillful artist, twenty-five to thirty yards. The shuttle, it is said, may be thrown with the astonishing celerity of 150 to 200 times in a minute, and the manuel power requisite to produce this *lightning* movement is not greater or more laborious, apparently, than that which would be necessary for the grinding of coffee and the churning of butter. The economical and the curious, the industrious and the fashionable, the money-making and money saving in the domestic or manufacturing line—and in short all the citizens of Richmond, are invited to go and examine this chief d'œuvre of the useful arts."

This description of a "Triumph of American ingenuity and one of the surest pillars of her independence," are in words which were truly prophetic.

It is noteworthy that the number of picks per minute mentioned is practically the same today; the yards per loom per expert weaver have increased 75 to 100 per cent; the selling price of the goods has been reduced 80 to 90 per cent. and the productive capacity per weaver has been increased 20 to 30 fold.

Closely following the power loom came the invention

THERE IS
NO RUBBER
IN THE COMPOSITION
OR PRONUNCIATION OF
RU-BER-OID

¶ This great roofing has a good name and deserves to have it pronounced correctly.

RU-BER-OID
PRONOUNCED
"RU" AS IN RUBY
ALWAYS SPELLED WITH
ONE B

¶ RU-BER-OID Roofing has weathered the storms of over 22 years, and the onslaughts of imitators for almost as long.

¶ RU-BER-OID has been to the South Pole with Captain Scott and to the North Pole or thereabouts with various other explorers.

¶ And to all intermediate points has RU-BER-OID gone—invairably doing what is claimed for it.

¶ KA-LOR-OID (colored RU-BER-OID) is the same durable material with the added attraction of beautiful and permanent colors—Tile red—copper green.

Send for Samples.

The Standard Paint Company

100 Williams St. **New York**

For Leaky Cellars & Pits
IMPERVITE
is GUARANTEED to Waterproof

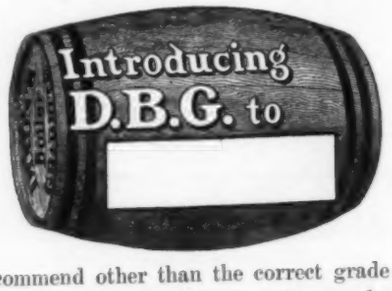
of the first self-acting loom temple by Ira Draper. This improvement enabled the weaver to tend two looms and thus reduced the labor cost of weaving one-half, while at the same time making the work easier.

From time to time improvements were made in the let-off, the take-up, the shuttle motion and the temples, which were the subjects of numerous patents. From the early 70's however, until the first Northrop looms were placed on the market in the latter part of 1894, looms for plain cotton fabrics made little progress; although by this time many weavers were sufficiently expert to tend from six to eight looms each on print cloth weaves.

The automatic loom made it possible for a weaver with hardly any experience to operate sixteen looms, with a corresponding reduction in the labor cost of weaving; at the same time the weaver was enabled to earn more wages.

Dixon's Boiler Graphite.

Here is a barrel of Dixon's boiler graphite in the form of a mailing card which the JOSEPH DIXON CRUCIBLE COMPANY of Jersey City, N. J., is using to introduce this product to engineers and others interested in cleaner boilers. The card is printed in two colors and on the inside calls attention to the fact that for nearly four score and ten years, the company has had at its command, all forms and grades of graphite and therefore has no incentive to



use or recommend other than the correct grade of Dixon's Boiler Graphite. This graphite is said to reduce fuel consumption, prevent the hardening of scale, give to the surface of the boilers a smooth polish, prevent pitting and make the removal of scale easy by a gentle, mechanical action. The reverse fold forms a return card bearing an invitation to write for the Dixon booklet "Graphite For The Boiler."

Leaves Clinchfield Fuel Co.

For the purpose of identifying himself with the formation of new coal companies to engage in handling American coal on an extensive scale in the domestic and foreign markets, L. S. Evans, for many years the executive head in Southern territory of the Clinchfield Fuel Co., with headquarters at Spartanburg, has resigned as vice-president and general manager of the company. To Mr. Evans' broad-minded administration has been largely due the development of the business of the Clinchfield Fuel Co., which has made Spartanburg, S. C., a coal distributing center for a vast surrounding territory, and which has been marked by an increase in the annual output of the Clinchfield mines from 1,250,000 tons in 1910 to 2,250,000 tons in the present year.

The Clinchfield Fuel Company has under his management achieved an enviable reputation as a powerful factor in the distribution of coal throughout the southeastern territory. Its work has attracted the attention of the most progressive coal men in the United States, and of the leading coal trade and mining journals. A feature of widespread interest is the extensive coal storage plants at Bostic, N. C., which accumulates the surplus product of the mines during the summer season and protects all customers against a shortage during the winter season. Its value and practicability have been established by successful operation over a period of several years. Another feature of the Clinchfield business methods which has attracted much attention and which is becoming an established practice in the coal trade is the maintenance of an engineering department to cooperate with the coal users in the solution of plant problems and in assuring the most economical results in the generation of steam.

It is gratifying to know that the new connection which he is making will not take him from the South, but that he will continue to make his headquarters at Spartanburg.

Announcement.

THE CHAMBERLIN COMPANY, 409 and 10 Free Press Building, Detroit, announces a change of address to 1201, 2 and 3 Kresge Building.

This company has made a specialty of sales and advertising campaigns for manufacturers of machinery, power plant equipment and other products of a more or less technical nature for a number of years past.

Recently, C. W. Brooke, an engineer and long experienced in sales and advertising campaigns in Pittsburgh and Buffalo districts, has acquired an interest in the Chamberlain Company, and in keeping with the policy of expansion on the part of the organization, goes to it as their secretary and treasurer.

The Chamberlain Company has retained for a period of some nine or ten years, a number of the largest and most attractive accounts in the power plant field.

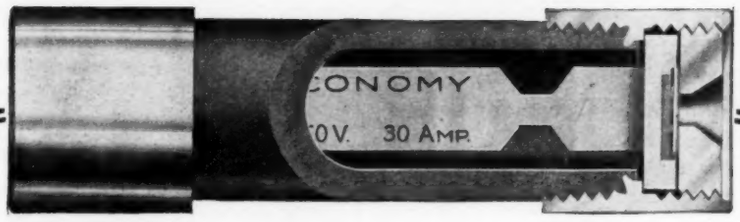
In addition to the special fields which heretofore have required exclusive attention, the new organization will make a feature of handling sales and advertising campaigns for manufacturers in the electrical world as well as the preparation of technical matter on a special assignment basis for advertisers in general.

Wm. M. Chamberlain, the head of the company, has had a wide experience along the line of art, printing and general advertising, having been engaged exclusively in the technical field for the past ten years.

With the increased force, larger quarters and the prestige the organization enjoys at the present time, together with the wide range of possibilities before it, the continued success of the Chamberlain Company seems assured.

State Senator Ezra Dixon of the DIXON LUBRICATING SADDLE CO., Bristol, R. I., was re-elected by the largest plurality he ever received at the recent election. A fitting endorsement by his constituents of the Senator's untiring efforts for sound legislation in the State Assembly.

L. E. Whiton of the D. E. WHITON MACHINE CO., New London, Conn., was made state senator in the recent elections. All over the country business men are getting into politics. This is as it should be.



"The fuses that save 80% per year" are the logical fuses for you to use—

ECONOMY renewable cartridge FUSES

are giving positive electrical protection and cutting fuse maintenance 80% in great industrial plants, central stations, mines, department stores, steam and electric roads, etc.

ECONOMY renewable cartridge FUSES are the only renewable fuses uniformly rated—the Economy design is the only design so far produced that provides the desired electrical characteristics. All capacities of renewal elements are readily available, making large fuse stocks unnecessary. ECONOMY renewable cartridge FUSES never vent fire nor hold a sustained arc—they are absolutely safe. Now available in knife blade and ferrule types.

Special Announcement

Two renewal elements are now furnished (without charge) with each Economy fuse. Now you figure what fuse is the cheapest, not only to buy, but also to maintain.

Bulletin No. 7 and Samples on Request. Write now

Economy Fuse & Mfg. Company, Kinzie & Orleans Street, **Chicago, Ill.**

You Can Reduce Weaving Costs

SEND us a worn shuttle with completely filled bobbin and state kind of goods woven and name of loom. These will explain your needs and help us to design an efficiency shuttle for your requirements. This shuttle has the approval of loom builders and weaving experts. It should help you to weave better fabric at a lessened expense.

SHAMBOW SHUTTLE COMPANY

Woonsocket, R. I.

BOOK REVIEWS

All Books Reviewed Under This Heading May Be Procured From COTTON at the Published Price.

TEXTILE CHEMISTRY & DYEING. By Louis A. Olney, Head of the Department of Textile Chemistry and Dyeing at the Lowell Textile School, Lowell, Mass. 376 pages. 100 illustrations, half morocco binding. Published by the American Technical Society, Chicago, Ill. Price $2.00.

This volume is intended to furnish a working guide to all details of improved modern practice in the art of textile coloring and allied processes. It discusses the technology of fibres fully. It takes up the principles and preliminary operations of cotton bleaching in its various types, dyeing and printing on cotton and similar effects on wool, silk and cotton and other combinations. The different kinds of dyestuffs are discussed, both natural and artificial, as well as the calculations and methods of detecting and analyzing. This book is thoroughly indexed and the textile calculations are grouped in a chapter in the back of the book with suitable problems for illustration. It is a book which will prove of unusual interest to young dyers and finishers.

JUTE & LINEN WEAVING. By Thomas Woodhouse and Thomas Milne. 590 pages. 305 Illustrations. Published by McMillan & Co., Ltd., London, Bombay, Calcutta, Melbourne. Price 12 shillings net.

While this work is intended principally for those associated with the jute and linen trade, there is also much in it that will be found useful for those interested in other lines of the weaving industry. The work is a thoroughly practical one and deals with facts rather than theory. It is thoroughly illustrated and the illustrations are admirably suited for their purpose, suggesting as they do the vast possibilities in the art of weaving. This second edition embraces practically all the original matter as published in the first edition and also includes 108 new illustrations and two distinct types of automatic weft supply mechanisms. Other important features which are taken up in this edition are the chain linking machine, terry towel motions, warp stop motions, individual motor drives, improved type of box motions and jacquards. It is a book that is not by any means completely defined by its name.

"The Young Man's Chances in South and Central America," by William A. Reid, was recently published in Washington, D. C., by the Southern Commercial Congress. (Price $1.00.) It contains practical advice and actual incidents and facts taken from commercial and industrial life. The following topics are indicative of its nature: agriculture, engineering and constructive professions, salesmanship, teaching, journalism, manufacturing, hotel business, law, insurance, banks, medicine, dentistry, nursing, typical salaries and living expenses, employment agreement, stories of success and failure, social environments. The book is intended primarily for the North American who contemplates engaging in South or Central American business or commerce.

C. E. Bockus, vice president of the Clinchfield Coal Corporation, announced recently the appointment of George C. Reese to succeed L. S. Evans, as sales manager for the Clinchfield Fuel Company with headquarters at Spartanburg, S. C. Mr. Reese has held an important clerical position with the fuel company since the organization in 1905, and his appointment comes in recognition of his ability and his long and faithful services to the company.

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KNITTING MILL NEWS.

Notices of mill projects, additions or improvements are solicited for this department. Other notices pertaining particularly to the Southeastern section will be found in the Southern Mill Situation review.

CALIFORNIA

LOS ANGELES. The Woodstock Cotton Mills Company has been incorporated to manufacture all kinds of cotton goods. The capital stock is $1,000,000. The incorporators are Harry C. Jackson, C. A. Roberts, L. M. Sullivan, E. E. Whitney, Jr., and E. S. Cummings.

DELAWARE

WILMINGTON. The West Norfolk Knitting Mills have been incorporated. The capital stock is $75,000.

WILMINGTON. The Delmarvia Manufacturing Company, which specializes in the manufacture of underwear and which already has five factories is preparing to open another plant in this city, which will be located at 102-04-06 East Fourth street, with W. T. Weston, of Easton, Md., as manager.

NEW YORK

ALBANY. Cypress Sweater Specialty Company, Inc., Brooklyn, to manufacture and deal in sweaters and knitted goods, $500,000. Paul and Miriam Scheftel and Isaac Bretman, all of Brooklyn, are the incorporators.

MONTELLO. Several New York men interested in the hosiery business, have been to this town looking for a location for a hosiery mill.

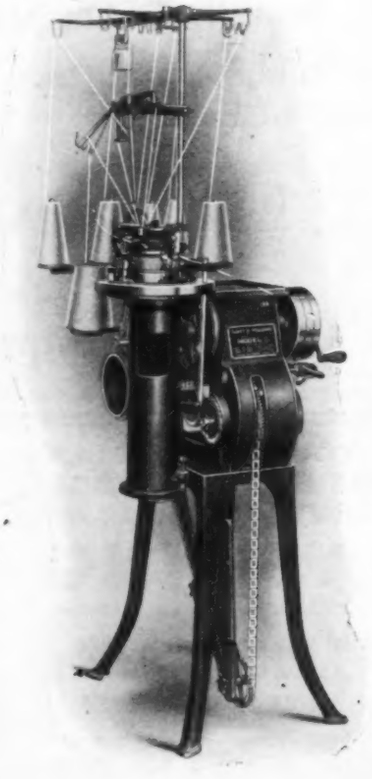
VALATIE. It is reported that an Albany manufacturer is negotiating with the local board of trustees for the purchase of the Valatie Knitting Mill. The mill is valued for taxation at $16,000. A meeting will be called by the board of trustees to discuss whether the present assessment will be reduced or exemption from taxes be granted for five years.

PENNSYLVANIA

GREENCASTLE. Additional machinery has been ordered for the Windsor Knitting Mills, South Carlisle street. Since the plant is now equipped for the finishing of the hosiery, a number of extra hands have been employed and the mills will be increased in size.

READING. The Glasser Hosiery Co., recently incorporated with a capital stock of $50,000, has taken possession of its new factory building at 13th and Muhlenberg streets. The new building is of brick three stories, 50 by 90 feet. The capacity of the plant will be 1,200 dozen pairs a day, principally men's half silk hosiery. The company is doing an export trade with South America, Asiatic ports and Cuba. Edward Glasser, of Reading, is president and manager.

RICHLAND. A. C. Haak, owner of the Richland Knitting Mill, is making a number of extensive improvements at his plant, including the erection of a modern, two-story addition which will be used as a packing department. A drier, consisting of a steam board for pressing the hose, is also one of the improvements. A "dyer" has been installed, doing away with the expense of shipping the finished product to the Prospect Dye Works at Reading.



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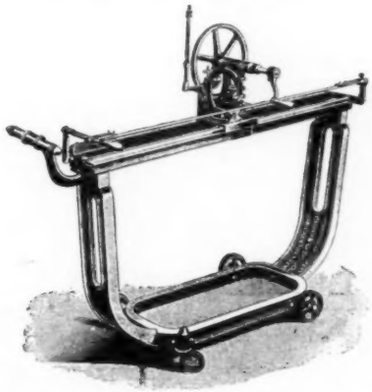

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